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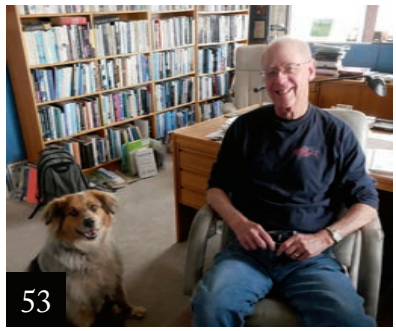
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[FROM THE INTERIM EDITOR

Medical Pseudoscience: Here and Abroad, Old and New

Despite recent dazzling scientific advances (e.g., mRNA vaccines), medical pseudoscience and health misinformation have emerged as some of the most serious problems of the modern age, providing skeptics and supporters of science-based medicine with new opportunities and challenges. But even as new variants of medical misinformation are spread on the internet, many old forms of medical pseudoscience have not disappeared. Indeed, some of the older myths have surged in recent years, riding the general wave of political division and social media chaos.

This issue of Skeptical Inquirer focuses on both virulent traditional and emergent new forms of medical misinformation. Reporting from the heart of Europe—the same place where Samuel Hahnemann first introduced the misguided theory of homeopathy—Norbert Aust and Viktor Weisshäupl tell the story of a study published in the prestigious medical journal *The Oncologist* that purported to show dramatic effects of homeopathic treatment on the quality of life and survival rate of lung cancer patients. Given that homeopathic medicines are essentially inactive placebos, eyebrows were immediately raised. Aust and Weisshäupl reveal how a group of skeptics mobilized to reanalyze the results and found strong evidence of data falsification and manipulation. As of this writing, Oxford University Press, publisher of *The Oncologist*, has attached an "Expression of Concern" to the article, and Aust and Weisshäupl hope that, thanks to the diligence of European skeptics, the article will soon be retracted.

Reporting from yet another continent, Samit Ghosal describes a disturbing trend of government support for the use of traditional Ayurvedic medicine in contemporary India. It is a story that puts science-based medicine in conflict with political and nationalist agendas. Finally, Hungarian writers Nóra Falyuna and Péter Krekó describe a study they conducted showing how social media sites in Hungary make substantial profits by promoting medical quackery. Throughout this issue you will find several shorter reports related to medical misinformation, and we are committed to staying on this topic as long as it remains a problem.

As the previous issue of the magazine was going to press, we received news of the sudden death of CSI Fellow and Skeptical Inquirer "Reality Is the Best Medicine" columnist Dr. Harriet Hall, "The SkepDoc." This issue of the magazine includes an obituary by William M. London, a personal remembrance by Susan Gerbic, and Hall's final column. As you will see, Hall's contributions to the fight against the very problem that makes up the theme of this issue were enormous, and her loss has been felt all over the world.

Finally, as promised in the previous issue, we have another collection of remembrances of our editor of over four decades, Kendrick Frazier. This time, many of the messages come from people he inspired and supported around the globe. The section is illustrated with more photos by and of Ken. We still miss him and are likely to do so for a very long time.

—Stuart Vyse

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Harriet 'SkepDoc' Hall (1945–2023)

William M. London

Beginning with her first published article in 2003, Harriet Hall, MD, gained a devoted following of scientists, health professionals, and consumers around the world who treasured her clarity, wisdom, wit, insight, intellectual humility, and humanity. Her many writings, lectures, and other media appearances addressed a wide range of topics, including pseudoscience, questionable health claims, quackery, alternative medicine, science-based medicine, controversial medical practices, and critical thinking. She was a fellow of the Committee for Skeptical Inquiry, an editorial board member and contributing editor of Skeptical Inquirer, a contributing editor of *Skeptic*, an advisor to the Quackwatch network, an overseas friend of Australia-based Friends of Science in Medicine, an editorial review board member for the *Natural Medicines Comprehensive Database*, and an international editorial board member of the journal *Focus on Alternative and Complementary Therapies*.

Photo credit: Karl Withakay

On January 12, her husband, Kirk Hall, announced on her Facebook page:

> I know Harriet's work was followed and admired by many of you. It is with great sadness that I must tell you my beloved wife passed away quietly and unexpectedly in her sleep last night. At this moment, she would probably simply ask you to have a kind thought for her, be kind to each other and continue to support her belief in the truth.
>
> Please take care.

Many of Hall's activities are cataloged on her website, skepdoc.info. The site's editorial team announced efforts will be made to make sure her work remains available.

Most of her columns, articles, and book reviews, were published:

- on Tuesdays since January 2008 on the *Science-Based Medicine* blog, where she was one of five founding editors;
- in Skeptical Inquirer magazine, including her "Reality Is the Best Medicine" columns published since the September/October 2018 issue;
- skepticalinquirer.org, where her monthly "SkepDoc's Corner" columns have been published since September 2016, including some that were translated into Spanish by Alejandro Borgo of the Center for Inquiry Argentina;
- in *Skeptic* magazine, including her column "The SkepDoc," published in each issue since 2006;
- in *eSkeptic*, for which she was a frequent contributor;
- at Quackwatch, where she served as a medical advisor;
- in *The Scientific Review of Alternative Medicine*; and
- in *Free Inquiry* magazine.

From January through June 2010, she wrote a brief column called "The Health Inspector" in *O, The Oprah Magazine*. In her September 7, 2010, post at *Science-Based Medicine*, she described how the magazine's editors made it a "bizarre, frustrating experience" for her, thwarting her efforts to "make sure that at least my one little corner of the magazine was scientifically rigorous."

In 2015, the James Randi Educational Foundation released a free, ten-part video series of lectures by Hall on *Science-Based Medicine* along with a twenty-six-page downloadable course guide.

Her 2008 book, *Women Aren't Supposed to Fly: The Memoirs of a Female Flight Surgeon*, describes how she became a pilot and helped bring about

Photo credit: Karl Withakay

equality for women in the U.S. Air Force. She retired in 1989 as a full colonel after serving for twenty years in the Air Force. In addition to practicing family medicine and flight medicine, she held administrative positions, including chief of Aerospace Medicine and director of Base Medical Services. Additional details about her Air Force career are provided at the *Science-Based Medicine* blog.

She coauthored the ninth edition of the college textbook *Consumer Health: A Guide to Intelligent Decisions* (2013). She was disappointed by both its exorbitant price (typical of textbooks) and the fact that it was unavailable in libraries, putting it out of reach of many. An affordable Kindle version of the book was made available in 2019.

In 2022, Hall and Kevin Howell published the children's book *There's No Such Thing as the Tooth Fairy!* It was based on a fable about the Tooth Fairy at the end of one of Hall's most popular articles, "Teaching Pigs to Sing: An Experiment in Bringing Critical Thinking to the Masses," published in the May/June 2006 issue of Skeptical Inquirer. Howell adapted the fable for the book and provided illustrations.

Hall was much admired by participants in Quackwatch's Health Fraud Discussion List, where she contributed to more than 2,000 discussion threads. In 2005, a thread was started "In Praise of Dr. Hall," where appreciation of her writings was a recurring theme.

She was a popular speaker at The Amazing Meeting (James Randi Educational Foundation), the Trottier Public Science Symposium at McGill University, Skeptic's Toolbox workshops, the World Skeptic Congress, CSICon (Committee for Skeptical Inquiry), the Northeast Conference on Science and Skepticism, the Australian Skeptics National Convention, LogiCal, and other conferences. She was greatly missed at science and skepticism conferences in recent years. She was unable to travel due to health problems but nevertheless continued to write prolifically.

The SkepDoc wrote on her website that she didn't think her credentials meant much. She explained:

> There are Harvard-educated MDs and PhDs with impressive credentials who have written reams of nonsense, and there are people like James Randi who didn't go to college but whose writings are consistently reliable, rigorously researched and based on fact and reason. I hope no one accepts anything I write just because I'm an MD. Writing should be judged on its own merits, not on who wrote it.

Nevertheless, her educational background is notable. After graduating from the University of Washington with a baccalaureate, *magna cum laude*, in Spanish language and literature, she earned her medical degree from University of Washington School of Medicine. She completed her internship at David Grant USAF Medical Center at Travis Air Force Base in California and her family practice residency at Eglin Air Force Base, Florida. She was board certified in family practice.

The January 15, 2023, the *Skeptic Zone* (Australia) podcast paid tribute to Hall. It includes an interview with her by host Richard Saunders from 2007. Remembrances honoring her have also been published at sciencebasedmedicine.org, edzardernst.com, painscience.com, and www.respectfulinsolence.com, as well as on other websites and on social media. Not surprisingly, vile anti-vaccine propagandists have spread nasty, baseless messages online blaming her death on COVID-19 vaccination.

Harriet Hall provided this rationale for sometimes writing about pseudoscientific nonsense even when it isn't well-known: "My SkepDoc's Rule is 'before you believe a claim, find out who disagrees with it and why.' And you can't do that if no one has bothered to disagree with it yet." ■

William M. London is a professor of public health at Cal State LA and the editor of the free weekly email newsletter *Consumer Health Digest* published by the Center for Inquiry's Quackwatch. He writes a consumer health column at skepticalinquirer.org.

Virulent: The Vaccine War Takes on the Anti-Vaccine Movement

Stuart Vyse

A new film, dedicated to CSI Fellow and Skeptical Inquirer columnist Harriet "SkepDoc" Hall, describes the rise of the anti-vaccination movement from long before COVID-19 to the present day. The film's executive producer is Academy Award–winning documentarian Mark Jonathan Harris, and the film is produced by Laura Davis and directed and edited by Tjardus Greidanus. *Virulent* is a follow-up to their CINE Golden Eagle–winning film *A Shot to Save the World*, about the creation of the Salk polio vaccine. The film features interviews with pediatrician and author Dr. Paul Offit, surgical oncologist and managing editor of *Science-Based Medicine* Dr. David Gorski, and clinical neurologist and *Skeptics Guide to the Universe* podcaster Dr. Steven Novella—all of whom are also CSI fellows. Peter Salk, son of Salk vaccine discoverer Jonas Salk and president of The Jonas Salk Legacy Foundation, also appears in the film. The anti-vaccination position is presented in interviews with vaccine hesitant parents, as well as perhaps the most prominent and virulent anti-vax advocate, Robert F. Kennedy Jr.

In his review of the film, Jonathan Jarry of the McGill University Office for Science and Society wrote, "*Virulent: The Vaccine War* shows us what the modern anti-vaccine movement looks like and pushes back with stories of its own. … People need to see it."

Check the film's website (https://virulentmovie.com/) for additional information and future screenings. ■

Stuart Vyse is the interim editor of the Skeptical Inquirer.

Suspected QAnon Founder Admits Conspiracy Theory Is Bogus

Benjamin Radford

In a sworn government deposition, James Watkins (the man widely believed to be behind QAnon) admitted that the conspiracy movement is bogus and "a boogeyman." Watkins, who founded the 8kun message board where QAnon first emerged, was called to testify by the January 6 Select Committee on June 6, 2022, and the transcript of this meeting was released in January 2023.

Testifying under penalty of perjury, Watkins answered many questions related to his knowledge of, and connections to, the January 6 insurrection. Several questions dealt specifically with the dangerous conspiracy theory he is closely associated with. Not only did Watkins dismiss and distance himself from QAnon, but he framed it as a left-wing disinformation campaign:

> As far as I know, QAnon is manufactured by the left-wing media, and it's probably put out mostly by a company called Media Matters. … QAnon is … like a boogeyman. … It's manufactured. It's not anything to do with my website. I've used the term a couple times, and that's before I realized what it even was. … Media Matters is, I believe, funded by a man named George Soros.

Soros is a prominent philanthropist who often supports progressive causes and has been the subject of many anti-Semitic and right-wing conspiracies. Watkins suggested that the Committee depose Soros, because he "is funding QAnon … because he's promulgating propaganda to get his narrative known … because he wants to take over your country and my country. He wants the United States to cease to exist." When pressed for evidence of this claim, Watkins demurred, replying "That's my opinion."

Jim Watkin. Photo credit: Fredrick Brennan (Wikipedia)

Despite considerable linguistic and forensic evidence to the contrary—as well as a seeming admission in an HBO documentary—Watkins has continued to deny that he or his son, Ron, are behind the QAnon conspiracy, which has been embraced by conservative news media and politicians, from Donald Trump to Georgia Representative Marjorie Taylor Greene to local elected officials across the country (for more, see Stephanie Kemmerer's articles in the March/April and May/June 2021 Skeptical Inquirer issues). Watkins did not clarify why he believed that so many prominent conservatives were fooled into embracing and endorsing a complex conspiracy theory created by one of the most prominent liberal billionaires. ■

Benjamin Radford is the deputy editor of the Skeptical Inquirer.

2020 Voter Fraud Conspiracists Lose Steam—and Elections

Benjamin Radford

In a heartening sign for critical thinking and democracy, American voters largely rejected conspiracy-embracing Donald Trump–backed Republican candidates in the 2022 midterm elections. Hundreds of Republican candidates at one point or another echoed Trump talking points and cast doubt on the legitimacy of the 2020 elections, though only about three dozen explicitly and directly endorsed the debunked voter fraud claims.

Trump was told—clearly and repeatedly—by many, including then-Attorney General William Barr, that the conspiracy claims he was spreading had been investigated and were determined to be false. Barr testified that Trump made bold, false conspiracy claims that were "very conclusory, like, 'These machines were designed to engage in fraud,' or something to that effect. But I didn't see any supporting information for it. … I thought, 'Boy if he really believes this stuff … he's become detached from reality, if he really believes this stuff.'" Barr told Trump that he had duly researched the fraud claims and found no evidence to support them, later calling Trump's conspiracy claims "bullshit," "nonsense," and "crazy stuff." (See "Jan. 6 Investigation Testimony Reveals Conspiracy-Riddled Trump White House" in the September/October 2022 SI). Nevertheless, of course, Trump carried on.

Editorial credit: Lyonstock / Shutterstock.com

To be sure, this is not the last gasp of Trump's election deniers. Though the widely predicted "red wave" of Trump-backed candidates failed to materialize, conspiracy promoters remain active within the party; in fact, the bulk of those Republicans who initially thwarted Kevin McCarthy's bid for Speaker position in early January promoted the baseless election fraud charges. In Brazil, supporters of ousted authoritarian president Jair Bolsonaro (who, like Trump, questioned election results, took anti-vaccination positions, and criticized the press) embraced claims that the election there was stolen, resulting in a siege of government offices likened to the January 6 insurrection.

Nevertheless, there are signs that the GOP is gradually recognizing that embracing bogus claims is not only harmful to democracy but also to their party. The Republican drumbeat of election denial likely backfired in some cases, diminishing voter turnout. David Becker, executive director of the Center for Election Innovation and Research, was quoted in *The New York Times* explaining that "If you tell people that voting is hard, or voter fraud is rampant, or elections are rigged, it doesn't make people more likely to participate. Why would you want to play a game you thought was rigged?" It's likely that promoting conspiracy theories cost Republicans in several close races, including in Arizona, Nevada, and Michigan.

There are also social costs to the conspiracy claims. A National Public Radio/Ipsos poll taken in January 2022 found that 64 percent of Americans believe that their democracy is in crisis. It also found that about a third of Trump voters believe that the January 6 insurrection mob did not comprise Trump supporters—despite many of them carrying Trump flags, expressing support for Trump prior to the event, and having come directly from Trump's speech—but instead "opponents of Donald Trump, including Antifa and government agents." A year later, die-hard Republicans (whether or not they themselves believed or endorsed the conspiracy) are now urging the party to move on. ■

Biden Administration Introduces Scientific Integrity Effort

Stuart Vyse

Soon after entering office, President Joe Biden launched a multi-agency Task Force on Scientific Integrity to restore "trust in government through scientific integrity and evidence-based policy making." In January 2023, the group released its sixty-six-page document, "A Framework for Federal Scientific Integrity Policy and Practice." According to a February 11, 2023, report in *The Lancet*, the Union of Concerned Scientists (UCS) documented 206 lapses in scientific integrity in government agencies during the Trump administration and one so far during the Biden administration. Examples of such lapses include the Trump administration's 2020 unsuccessful attempt to add a citizenship question to the U.S. Census over the objections of census officials who said it would make the results less accurate and Trump's 2019 presentation of false information about the areas that would be affected by Hurricane Dorian. The National Oceanic and Atmospheric Administration (NOAA) was compelled to produce a statement stating that their initial calculations were incorrect.

According to the *Lancet* report, the newly constituted Republican Congress is taking a different approach to scientific integrity. Frank Lucas (R-Oklahoma), chair of the House Committee on Science, Space, and Technology, has proposed making NOAA an independent agency outside the executive branch that is capable of issuing binding regulations. Additionally, Cathy McMorris Rodgers (R-Washington), who chairs the House Committee on Energy and Commerce, is concerned about the Department of Health and Human Services' research review board, which evaluates high risk research programs such as those involving the SARS-CoV-2 virus. A January 2023 Government Accountability Office report requested by Republicans found lapses in the review board's oversight.

The recommendations presented in the task force's framework document included establishing a definition of "scientific integrity" and regular evaluations of agency scientific integrity policies. However, the framework represents policy guidance but does not carry the force of law. As Jacob Carter, research director at UCS's Center for Science and Democracy, told *The Lancet*, "It could easily be undone by a new administration with a stroke of a pen." ■

Timothy Caulfield Awarded Order of Canada for Battling Health Misinformation

Stuart Vyse

Photo credit: Karl Withakay

CSI Fellow and CSICon 2022 speaker Timothy Caulfield was awarded the Order of Canada in late December 2022. According to the official website, "The Order of Canada is how our country honours people who make extraordinary contributions to the nation." Since its inception in 1967, 7,600 people have been invested into the Order. Caulfield's award was in recognition of his work combating health misinformation.

Caulfield is Canada Research Chair in Health Law and Policy, a professor in the Faculty of Law and the School of Public Health, and research director of the Health Law Institute at the University of Alberta, Edmonton, Canada. He is also the host and coproducer of the award-winning documentary TV show *A User's Guide to Cheating Death*, which has been shown in over sixty countries, including streaming on Netflix in North America. Caulfield told CTV News Edmonton he was in Los Angeles, California, when he got the call informing him of the award. "I was sitting in a crappy coffee shop in a strip mall after an evening where people were yelling at me about misinformation. I was kind of at the end of my rope," he recalled. "I got a little emotional." ■

Predictors of Susceptibility to Health Misinformation

William M. London

Communication researchers from the University of Maryland reviewed sixty-one studies published between 2004 and 2022 to understand why people are susceptible to health misinformation. The researchers placed the psychological predictors into four categories:

1) Ability to reason accurately (expected to reduce susceptibility);

2) Motivation to reason accurately (expected to reduce susceptibility);

3) Directionally motivated reasoning—meaning the desire to reach a preferred conclusion (expected to increase susceptibility); and

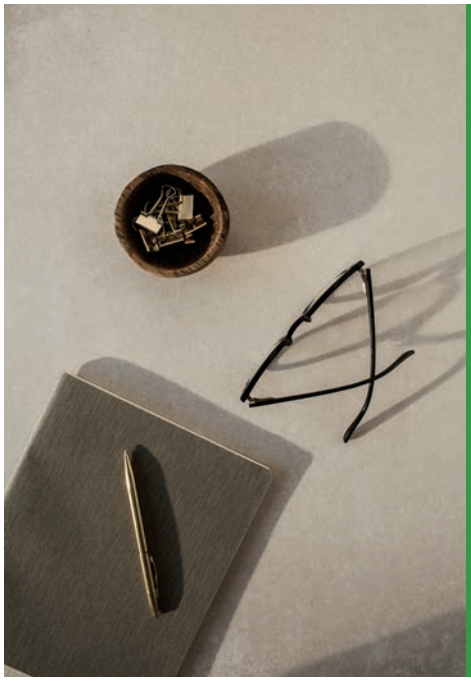
4) Personal- and social-identity–motivated reasoning (expected to increase susceptibility).

Findings from the review included:

- An ability to reason accurately was strongly associated with reduced susceptibility to health misinformation.
- Two predictors related to accuracy-motivated reasoning were associated with reduced susceptibility: (a) analytical thinking and (b) trust in scientists or scientific institutions.
- Trust in healthcare professionals appeared to play a weak role in susceptibility.
- Trust in journalists was associated with increased susceptibility.
- Conspiracy thinking predicted more susceptibility.
- Feelings of worry and anxiety tended to predict more acceptance of health misinformation.
- Psychological predictors aligned with identity-motivated reasoning were generally associated with increased susceptibility.
- The evidence was mixed regarding age, gender, educational attainment, and income as predictors of susceptibility.
- Being African American or Hispanic American was consistently associated with increased susceptibility.
- Social media use was associated with increased health misinformation susceptibility in most studies, although about one-third found no relationship.

Based on their findings, the researchers suggest that potentially effective strategies to counter misinformation in some populations include: (a) correcting misperceptions with factual information, (b) preparing people to resist misleading arguments or rhetorical strategies, (c) increasing transparency in public health communications, and (d) using trusted in-group sources to debunk misinformation. The findings were published in the article "Why Do People Believe Health Misinformation and Who Is at Risk? A Systematic Review of Individual Differences in Susceptibility to Health Misinformation," by X. Nan et al. published in *Social Science & Medicine* 314: 115398, 2022. ■

A version of this news item previously appeared in Consumer Health Digest.



We're Looking for a New Editor!

As you know, our beloved editor, Ken Frazier, died suddenly this past year. We are now looking for his replacement. This is a full-time job that includes duties as a speaker and representative of the magazine. It can be done from CFI headquarters in Amherst, New York (near Buffalo), CFI West headquarters in Los Angeles, or remotely.

We are looking for someone with a strong editorial vision for Skeptical Inquirer who can cultivate new authors and further strengthen the world's premiere magazine for science and reason. If you have a background in science and/or science journalism and are committed to the cause of skepticism, please consider applying.

Please visit centerforinquiry.org/employment/editor-of-skeptical-inquirer-magazine/ for more on the position's qualifications and specifics. You can send a resume, cover letter, and 2–3 writing samples to: careerseditor@centerforinquiry.org.

Harriet Hall Stepped Up

SUSAN GERBIC

Harriet A. Hall was born in St. Louis, Missouri, on July 2, 1945, and died on January 11, 2023, in Puyallup, Washington.

Soon after her death, Richard Saunders replayed a 2007 episode of his podcast, *The Skeptic Zone*, in which he interviewed Hall while they were both on a James Randi Educational Foundation (JREF) cruise to Alaska. It was Hall's first ever podcast interview, and listening to it again made me pause to consider how much she gave our community and how fortunate we were to have her with us for as long as we did.

On the podcast, Hall explained that for many years she had been a "passive skeptic," attending the conferences, doing the readings, but never expecting to be more active than that. Then she attended the Committee for Skeptical Inquiry (CSI) Skeptic's Toolbox at the University of Oregon, led by Ray Hyman, Barry Beyerstein, Wally Sampson, James Alcock, Loren Pankratz, and—with his amazing optical illusions in tow—Jerry Andrus. Hall told Saunders that at the Toolbox she realized she had found her community, and, with some encouragement from the Toolbox faculty, she tried her hand at writing an article on medical quackery.

One thing led to another, and Hall became prolific, publishing in Skeptical Inquirer and *Skeptic*, as well as a short stint in one of Oprah's magazines, followed by the *Science-Based Medicine* blog. She started her writing career later in life but made up for it with blazing productivity.

I met Hall at one of the Skeptic's Toolbox events, where I was also a passive skeptic, just hanging out and waiting to see where I fit in the wild world of scientific skepticism. I never ever thought in my wildest dreams that I would also become a writer for Skep-

Photo credit: Susan Gerbic

2014 Skeptic's Toolbox attendees. Harriet Hall is in the back row center. Photo credit: Susan Gerbic

tical Inquirer, and in some far-out year of 2023 would be asked to write a remembrance of her for the magazine. I think Hall would have called both our "careers" surreal, but within this community we both learned that all hands, skills, and motivations are needed on deck. Any hope of slowing down need to be forgotten, because there is work to be done, and she stepped up. Even after a career in the United States Air Force as a flight surgeon, retiring as a Colonel and receiving her pilot's license, she kept on stepping up.

Hall had never published anything before, but her quick wit and snarky responses in print had editors seeking her out to write more. In 2008, she wrote her autobiography, *Women Aren't Supposed to Fly: The Memoirs of a Female Flight Surgeon*, about her military life from 1969–1989 and experiences living in Spain.

I know people thought of her as a feminist, but I'm not sure Hall thought of herself that way. We had conversations about the pressures she felt to be the female trendsetter in the skeptic community, and it wasn't a role she wanted pushed on her. Hall was clear: she just wanted to be Harriet Hall, the SkepDoc.

A couple years ago, we both were added to one of those "females of skepticism" lists, and in an email exchange, I expressed my frustration at feeling like I was being placated—not good enough to be with the men—and she wrote me back: "I agree with you. I hope someday people will not even notice sex/gender but just recognize ability and accomplishments."

Hall did step up—over and over—for our community. You might not be aware of how prolific she was: She became a fellow of both CSI and the German skeptics group GWUP; she was a founding member of the Institute for Science in Medicine; and in 2015, she published a series of videos for the JREF, titled "Science Based Medicine," in which she attacked naturopathy, homeopathy, acupuncture, chiropractic, and more. This series of ten videos has almost 100,000 views. Personally, I think it should be 100 million views. She gave the Australian Skeptics unlimited access to her personal published work, and I'm sure it will continue to be used to educate people about medical science and pseudoscience.

Hall's frankness and pithy humor comes through in her videos and writings. The Guerilla Skeptics of Wikipedia (GSoW) project that I run often uses articles she had written as sources for the appropriate Wikipedia pages. In preparation for writing this article, I revisited some of the quotes we have left for others to find. On the Wikipedia page for colon cleansing, we quote her saying "The colon cleanses itself. . . . The idea that its walls are coated with years-old hamburger residue is preposterous." On the Christiane Northrup Wikipedia page, we added this quote: "MDs who recommend quackery along with legitimate medical advice are arguably more dangerous than outright quacks because people are more likely to take them seriously." She gave the Netflix series *(Un)Well* "two thumbs down," and she called *What the Health*, another faux-health documentary series, "not a reliable source of scientific information." Her local Tacoma, Washington, newspaper the *News Tribune* got a piece of her mind on their Wikipedia page when we added this quote: "Harriet Hall criticized the *News Tribune* in *Skeptical Inquirer* in 2019 for its acceptance of advertisements for health-related products that imitated the presentation of real articles with only a small disclaimer."

You might think, "Big deal we all know these faux-health shows are full of misinformation." But when these documentaries first came out and someone created their Wikipedia pages, there was no notable criticism to be found. Only fluffy positive articles existed. So the public, who was clamoring to find out whether what they were watching was real science or not, had nothing but positive nonsense to find. Hall stepped up and watched the shows, getting her reviews out fast so that viewers could find them and learn how they were being conned with slick, fast-talking quacks. After I asked her to watch one series and write a review, I received this email from her: "It was a truly painful experience. Sitting through hours of nonsense because I had to keep pausing it to take six pages of notes; laboriously organizing my notes into an article, fact-checking, etc. Two days of my life gone. You owe me one!"

That was Harriet: always stepping up to do what she could to help out—and with her unique humor. I have a photograph of her from the 2013 CFI Summit where she dressed up as a "Quackbuster." She wore a spray bottle around her neck with a label that said "Quack B Gone." In 2016, she attended the CSICon Halloween party wearing a sign that simply said "Oscillococci-

num." She said "This is a homeopathic flu remedy made with duck liver. They dilute it until there is nothing left but the quack." With that, she pulled out a duck call and blew it.

For someone who at first appeared so quiet and respectful, she sure liked to tell jokes. She *was* quiet. You had to sit right next to her and pay attention to hear her. The only joke I clearly remember was the one where the guy asks his doctor if he would be able to play the violin after surgery. When the doctor said, "Of course," the patient said, "That will be great 'cause I can't play now." I know—it's a bad joke, but we all loved hearing her tell them.

Hall became known for the phrase "Tooth Fairy Science," meaning that some people try to study a phenomenon before knowing it even exists. In 2022, Hall published the book *There's No Such Thing as the Tooth Fairy!* about a little girl named Harriet who was trying to convince her younger brother, Henry, that the Tooth Fairy was all made up. It is a charming story, beautifully illustrated by Kevin Howell. I wrote to her soon after it came out and told her our community "needs to find more Harriets."

For all that humor, she was a realist. She loved to travel, but she slipped on a hike while attending the 2016 Australian Skeptics Conference and was hospitalized for weeks before flying home. Then, when attempting to travel again, she had some other health problem. She suffered from congestive heart failure for years, and eventually she wrote to tell me she would be staying close to home and concentrating on her writing.

Back in 2012, Hall wore a yellow T-shirt to The Amazing Meeting that was so controversial it was removed from her Wikipedia page after the photograph I took of her was uploaded. I know she wouldn't want to be remembered for the drama we lived through during those years, but I will mention what she had written on the back of the shirt because it still encapsulates her: "I'm a skeptic. Not a 'skepchick.' Not a 'woman skeptic'—Just a skeptic." I hear you, Harriet, and I agree. You have set a standard of productivity, quirkiness, and frankness that represents all of us, not just the females in the community. We all need to model your behavior and step up, because we are needed to fill the void you left behind.

Hall's husband, Kirk, shared an email explaining that she skipped dinner that final Wednesday night. She had been feeling poorly for a few days and told him she was cold and going to bed early. Kirk went in to check on her at 10 p.m. and found that she had died in her sleep. She is survived by Kirk and daughters, Kimberly and Kristin Ann. There will be no formal service; her cremated remains will be sent to the family plot in St. Louis, Missouri.

I haven't yet mourned you, my friend. I'm sure I will soon. Thinking about what our community has lost, I'm looking at it like the realist you were. It's not what we lost but how much we have gained. I wish it had been longer, but you will live on through your writings and wisdom. Damn, I still wish you were here. I miss you already, and so say we all. Harriet, you told me once that "you owe me," and as usual you were right. But actually, we all owe you. Thank you, Harriet. ■

Susan Gerbic is the founder of the Guerilla Skeptics of Wikipedia (GSoW) project and a frequent contributor to the *Skeptical Inquirer* website. She is a Committee for Skeptical Inquiry fellow.

Gerbic and Hall at CSICon 2017. Photo credit: Susan Gerbic

A Great Doctor's Rest (An Elegy for Harriet Hall)

JOE NICKELL

You taught us well
that what's real
is the best
medicine,
& with your pen
made countless
house calls.
So we, all
your friends,
know how you earned
a rest,
are glad to have learned
that at last,
of your own
death, you
slept right through.

The Hypocrisy of Medical Disinformation: A Report from Hungary

NÓRA FALYUNA AND PÉTER KREKÓ

Pseudoscience is a huge industry—while pretending otherwise. Large companies unwittingly sponsor pseudoscientific disinformation websites through online advertising. Using a new methodology to estimate their profitability, we found staggering figures. If companies and ad platforms do not take action, they may be vulnerable to the dangers of pseudoscientific disinformation.

Looking at the business behind pseudoscientific disinformation, we see that disseminators of online medical disinformation are hypocritical anti-capitalists. Despite regularly attacking the "pharmaceutical mafia" and Big Pharma, they obtain tremendous profits both directly (through website advertisements and clicks) and indirectly (through promotion of pseudoscientific medical products). Thus, the editors of medical disinformation websites are neither victims of deception nor "useful idiots." They are instead motivated by financial interests, making disinformation the best marketing tool possible. Fake news sells best.

Many clickbait and disinformation websites that spread pseudoscientific content and medical disinformation generate much of their revenue through advertisements. Previous studies have revealed how profitable the dissemination of disinformation might be. For example, despite promises to filter anti-vaccine content, tech companies generate up to $1 billion a year in advertising and other revenue through their support of the anti-vax industry (CCDH 2020).

According to the Business of Misinformation project focusing on Central and Eastern Europe (Bosnia and Herzegovina, Hungary, Moldova, Romania, Serbia, and Slovakia), ad placement is one of the primary sources of profit for most misinformation websites. This method relies heavily on Google's advertising system (Szakács 2020). We examined this business model used by medical pseudoscientific and disinformation websites in a study published by a Budapest-based think tank, Political Capital Institute, last year (Falyuna et al. 2022).

Measuring the Profitability of Disinformation

In the past few years, the pandemic has been a huge boon for conspiracy theories, pseudoscience, and the disinformation industry. Emotions can be critical drivers of conspiracy theories (Grzesiak-Feldman 2013). It can be far easier to influence people when they are emotionally affected and possibly frightened, so the role of emotions may not only be relevant for conspiracy theories: "increased emotionality is associated with increased belief in fake news" (Martel et al. 2020).

The coronavirus pandemic significantly amplified the online disinformation industry (Grimes 2021; CCDH 2021). The pseudoscientific disinformation ecosystem became more vibrant, organized, and extensive, and the crises provided new topics for the clickbait websites to entertain—or scare—their readers. The deafening information noise and emotional upheaval created a perfect environment for disseminating misleading content during the pandemic that could easily be exploited for business purposes. When people are afraid of losing their lives, they may be willing to purchase products or services that promise to treat or prevent an illness or to accept misleading information that may offer an explanation, answer, or reassurance. In response to the coronavirus pandemic, there has been a heightened focus on health, leading to increased profitability for both traditional and alternative medicine markets.

Our study, as far as we know, has been the first to provide a quantitative estimate of the profit advertisements generate for websites that systemically spread disinformation about the coronavirus, related treatments, and health in general. These topics often tie into other topics, such as political conspiracy theories. These revenues are significant; based on our estimate from Google Ads, the ninety-three Hungarian clickbait websites we evaluated that promote disinformation about COVID-19, advertise alternative medicine, or provide anti-vaccine information generate up to 3.7 billion HUF (approximately $10 million) in annual advertising revenue for their creators.[1] In 2022, the profitability of such websites increased significantly as a result of both an intense political campaign as well as the pandemic, which has increased not only the amount of time users spend online but also the volume of online commerce.

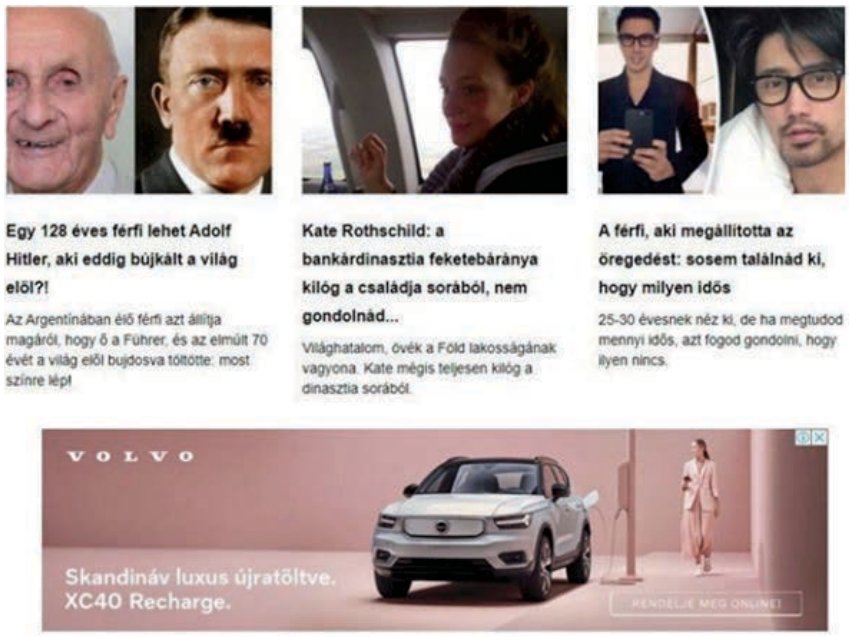
Political campaigns can provide a substantial contribution to the revenues

of the disinformation industry. Google's advertising helped to spread disinformation during the 2016 U.S. presidential election, as Rosie Graham's study on the relationship between Google AdSense and Facebook describes (Graham 2017). The analysis of Campaign for Accountability reached the same conclusion (Campaign for Accountability 2017). We did our research in the first months of 2022, and the parliamentary elections were held in April with enormous amounts of money spent in the online space (K-Monitor 2022).

For the most part, the authors and creators of medical disinformation websites remain anonymous; the pages do not include a statement of ownership. It is thus similarly challenging to determine precisely where their profits end up.

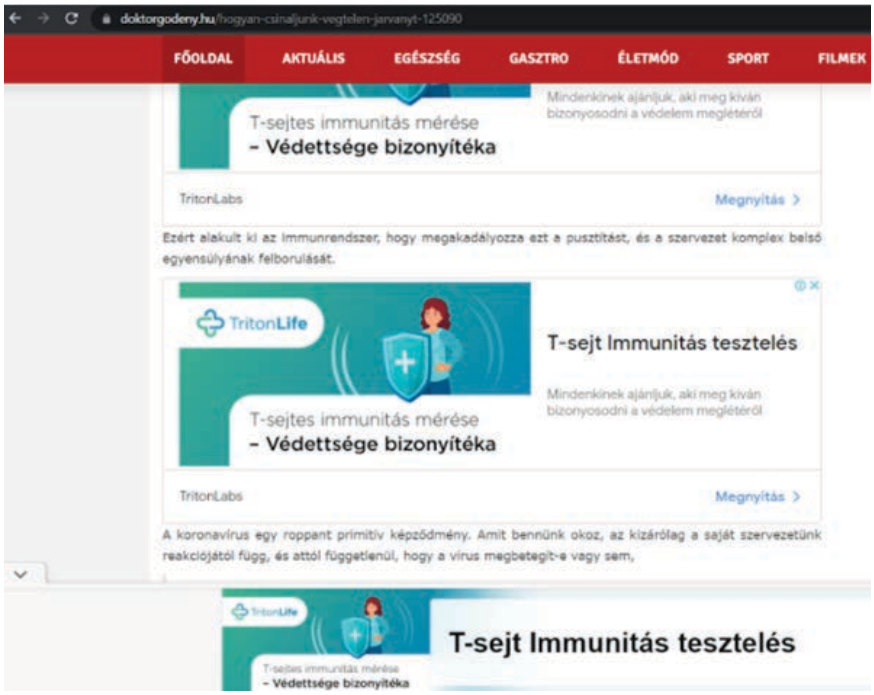
To obtain a quantitative estimate of advertising revenue, we used the program Google Ads. As the basis of our study, we relied on a list of 105 Hungarian websites, ninety-three of which we identified as ones using the advertising platform Google AdSense, which embeds banner advertisements on websites, thereby generating revenue for the website operator. In Google AdSense's system, advertisers have the option to target selected websites directly. In these cases, the ads appear only on the chosen websites or pages or on the YouTube channel associated with the pages selected. This media set may obtain revenue from other sources as well (directly or through advertisements sold on other advertising networks); additionally, our analysis examined only a sample, so we may safely state that the theoretical maximum revenue of the entire media set from the online advertising market must be significantly more than our estimate.

We found that the major corporations have unwittingly supported the profiteering of the disinformation websites studied by advertising on these sites, with several bizarre examples of this phenomenon. One is an advertisement for Volvo luxury automobiles appearing on a website that blends medical disinformation with political conspiracy theories, directly beneath articles that attempt to attract clicks by discussing Hitler at age 128(!), the supposed world dominance of the Rothschilds, and the supposed cure for aging.


Egy 128 éves férfi lehet Adolf Hitler, aki eddig bújkált a világ elöl?!
Az Argentínában élő férfi azt állítja magáról, hogy ő a Führer, és az elmúlt 70 évét a világ elől bujdosva töltötte: most színre lép!
Kate Rothschild: a bankárdinasztia feketebáránya kilóg a családja sorából, nem gondolnád...
Világhatalom, óvék a Föld lakosságának vagyona. Kate mégis teljesen kilóg a dinasztia sorából.
A férfi, aki megállította az öregedést: sosem találnád ki, hogy milyen idős
25-30 évesnek néz ki, de ha megtudod mennyi idős, azt fogod gondolni, hogy ilyen nincs.
VOLVO
Skandináv luxus újratöltve.
XC40 Recharge.
RENDELJE MEG ONLINE!

An advertisement for Volvo luxury automobiles appears on a website that blends medical disinformation with political conspiracy theories.

Another example is the website of the Hungarian frontman in COVID-19 and vaccine disinformation, Doctor Gődény, which features an excessive number of advertisements, up to nine ads per article. On this site, one can find advertisements for PCR coronavirus tests from a Hungarian laboratory, Triton Labs. Ironically, the articles on this website repeatedly claim that COVID-19 is fake and that PCR tests are tools used for malicious purposes—including the insertion of a microchip into the brain.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FŐOLDAL
AKTUÁLIS
EGÉSZSÉG
GASZTRO
ÉLETMÓD
SPORT
FILMEK
T-sejtes immunitás mérése
– Védettsége bizonyítéka
Mindenkinek ajánljuk, aki meg kíván bizonyosodni a védelem meglétéről
TritonLabs
Megnyitás
Ezért alakult ki az immunrendszer, hogy megakadályozza ezt a pusztítást, és a szervezet komplex belső egyensúlyának felborulását.
TritonLife
T-sejt Immunitás tesztelés
A koronavírus egy roppant primitív képződmény. Amit bennünk okoz, az kizárólag a saját szervezetünk reakciójától függ, és attól függetlenül, hogy a vírus megbetegít-e vagy sem,

The website of the Hungarian frontman in COVID-19 and vaccine disinformation, Doctor Gődény, features an excessive number of advertisements, up to nine ads per article.

The Six Commandments of Medical Pseudoscience

By analyzing the content of pseudoscientific pages and the claims of antivaxxer celebrities, we identified several false principles they use to promote alternative or pseudoscientific medicine, including in connection with the coronavirus and vaccines. These principles serve as fundamental truths or axioms, without requiring any further justification. We found the following six "Commandments" in this universe:

1) Anything natural is good; anything artificial is bad.

2) Every illness has mental origins, so it is primarily fear that needs to be cured, not the illness itself.

3) Traditional medicine is always more effective than modern pharmaceutical products.

4) Certain miracle medicines (e.g., vitamin C, baking soda, ginger) can cure any illness, but the profit-driven pharmaceutical industry wants to cover it up.

5) Anything that causes pain, suffering, or is unpleasant or inconvenient (e.g., vaccines, masks) cannot play a positive role in healing.

6) Physical exercise can protect the body against any illness by strengthening the immune system.

The medical disinformation websites we examined in our report have a crucially important role in the whole disinformation industry and beyond. As the Russian-Ukrainian war broke out, throughout the Western world the former anti-vaccination, pseudoscientific, or anti-scientific disinformation and conspiracy theory websites and celebrities became major promoters of conspiracy theories and disinformation about the war. This phenomenon could also be observed in the United States and Europe, with even conspiracy celebrities such as the French rapper Booba switching from coronavirus-denialism to the promotion of war-related conspiracy theories, such as the alleged existence of U.S. biolabs in Ukraine. American websites and podcasts that were promoting coronavirus-denialism and anti-vax disinformation have immediately jumped on the biolab theory as well. According to our attitude research, people who believe in coronavirus conspiracy theories (e.g., that the virus was deliberately created by sinister forces) are accepting war-related conspiracies as well (e.g., that there was a secret genocide being waged against the Russians in the Donbas). COVID-19, therefore, served not only as a booster for medical pseudoscience, but as a general booster for the whole disinformation industry.

The Background Powers Strike Back: Possible Solutions

As our examples above and study in Hungary indicate, corporations become—unwittingly—the main financial supporters of the disinformation ecosystem, thus contributing to the promotion of often life-threatening pseudoscientific tips and tricks. Thus, these companies—and the companies organizing their advertising campaigns—should play an important role in cutting the financial resources of this ecosystem, primarily by taking conscious steps to ensure they do not place ads as part of their online advertising campaigns on medical disinformation websites.

In the fight against disinformation, several actors have responsibility for the solution. Users and consumers should be critical of online information, but governments also need to develop and enforce legal solutions. Companies unwittingly funding the disinformation and pseudoscience industry can stop if they are more careful and vigilant, and technology firms could be more careful in automatically detecting disinformation and operating advertising systems more transparently, thereby helping in the demonetization of disinformation websites. The efficient demonetization stands on four legs: 1) transparency of websites and ad systems, 2) conscious and ethical advertisement practice of the companies, 3) public pressure on the companies financing disinformation and pseudoscience, and 4) pressure (including legal action) on tech companies to take more steps toward demonetization.

Transparency is one of the key principles. According to Braun and Eklund (2019, 25), "transparency—total clarity for advertisers concerning the placement of their ads and the specific intermediaries involved—would be the holy grail of accountability in the programmatic advertising industry." Advertisers need to know that they are advertising on a fake news website, but "because of the number of intermediaries handling each transaction—there's nowhere near the transparency necessary in the programmatic ecosystem to make those sorts of guarantees" (Braun and Eklund 2019, 26).

Several international initiatives, such as konspiratori.sk in Slovakia, have been successful in demonetization efforts through higher transparency. The Slovakian case is exemplary: a group of independent media and disinformation experts created a list of the nonreliable websites that are spreading dangerous disinformation (e.g., anti-vax) and approached big companies to avoid advertising there—with some success. Konspiratori.sk raises the important point that these websites can be dangerous for the marketers themselves, with the risk of tarnishing their reputation.

Public pressure is needed to encourage companies to take these reputational risks seriously. Just as products produced under unethical conditions are often boycotted by society, or as companies pay attention to environmental protection or racist, homophobic, sexist, or other socially reprehensible phenomena as part of their social responsibility mission, they should also include in their corporate social responsibility activities the avoidance of platforms that disseminate harmful disinformation, fake news, or pseudoscientific products.

The Global Disinformation Index (GDI, a nonprofit organization that focuses "on a neutral, independent, transparent index of a website's risk of disinforming readers")—again, in line with the principle of transparency—made some steps in this direction, drawing attention to the brands, advertising, and tech companies (ad tech, e-commerce, e-payment, etc.) that provide financial backing for disinformation websites, so that efforts can be made to defund disinformation. Their main goal is to "demonetize disinformation actors, stories, and sites by ensuring policies tar-

geted at online advertising, e-payment, e-commerce, and other monetization platforms."

Alliances of responsible media platforms and companies can also be important for raising awareness that advertising on shady conspiracy websites can hurt the companies' self-interest through reputational risks. For example, the Global Alliance for Responsible Media (GARM), a cross-industry initiative established by the World Federation of Advertisers, aims to address harmful content on the internet and digital media platforms and step up against its monetization through advertising. Members of this alliance are advertisers, media agencies, media platforms, and industry associations, and they are also cooperating with NGOs involved in civil society and safety with a focus on safe uses of media and tech. For example, GARM's reports research the safety of platforms for advertisers.

One solution often suggested for advertising companies is to blacklist known disinformation websites (we also made such a blacklist as part of our study). However, this tool should be used with caution: the problem with this solution is that disinformation websites always evade legislation or blacklists by reappearing in a new form, with a new name and a new URL (Szakács 2020). The blacklist method should not be discarded, but it does require constant monitoring and updating of these lists.

Furthermore, because social media platforms also help disinformation websites to make a profit, for example by maintaining pages on the platform whose URL has changed, social media platforms such as Facebook also have to make more efforts—in line, for example, with the Code of Practice on Disinformation, an initiative of the European Union that social media companies have also subscribed to—to monitor disinformation websites. Social media and tech platforms should also place greater emphasis on content moderation and screening pages to see where the clicks and advertisement money is going. It is fairly common for several openly anti-vaccination pages to be alive and well on Hungarian social media websites (especially Facebook) even though they run counter to Facebook's own social media guidelines. These guidelines would make it possible to remove anti-vaccination pages.

Of course, it would be even better if the organizations that are selling the ads—such as Google Ads—would flag these websites for the marketers, create a category for them that they can choose or not while placing the ads, or even remove these websites from their ad portfolio. Google's Trusted Flagger program, which enables particular users to flag dangerous content on websites, could help identify these pages, and if the program did not work on a voluntary basis, Google could provide financial incentives for organizations and individuals that participate in the Trusted Flagger system.

The analysis of Campaign for Accountability (Campaign for Accountability 2017) also raises the issue that by not listing disinformation websites, those selling advertising space can avoid responsibility and put all the blame and responsibility on advertisers:

> Under Google's system, it is incumbent upon advertisers to identify and blacklist specific domains that they find objectionable. But Google doesn't make this easy: its ad platforms don't allow advertisers to block fake news sites as a category. … Even if advertisers could identify specific extreme websites, Google offers these publishers a way to circumvent advertiser exclusions by making their sites anonymous. (Campaign for Accountability 2017, 7)

There have been some good steps in the direction of regulation in the European Union: demonetization as a main principle in the self-regulatory Code of Practice developed by representatives of online platforms, leading social networks, advertisers, and the advertising industry. Compliance with the Code is monitored and evaluated by the European Commission. Of course, legal pressure is also needed to enforce the online platforms to cut these channels of revenue. This is the goal of the Digital Services Act (European Commission 2022) that has been recently approved by the Council of Ministers in the EU. The European Union has vast experience with putting legal and political pressure on tech companies while cooperating with them. Time will tell how efficient these efforts are. ■

Note

1. Our method (finalized in February 2022) enabled us to estimate the theoretical maximum advertising revenue of the media set. In reality, this would translate into actual revenues only in the case of a fully saturated advertising market. How much of the theoretical maximum earnings determined are realized remains up to the advertisers.

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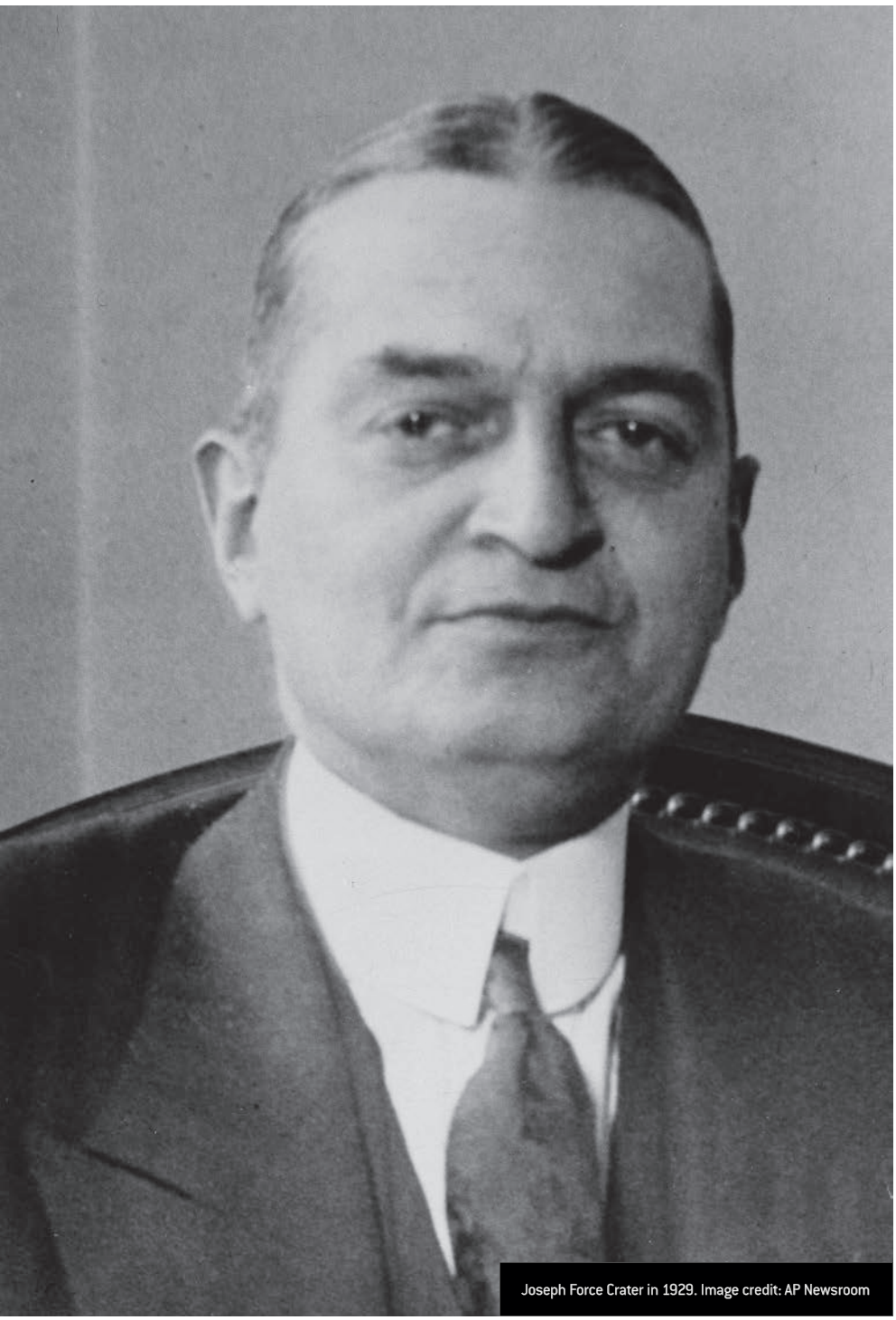
[INVESTIGATIVE FILES JOE NICKELL

Joe Nickell, PhD, a former magician and Pinkerton detective, has had a half-century career of solving the world's great unsolved mysteries.

Solving the Disappearance of Judge Crater



Joseph Force Crater in 1929. Image credit: AP Newsroom

Of missing persons, few are more notoriously unique than New York State Supreme Court Justice Joseph Force Crater, who, on the evening of August 6, 1930, waved goodbye to a couple he had just dined with and vanished into the night. No credible explanation has been forthcoming—until now.

Meanwhile, Judge Crater was reportedly seen far and wide—as an amnesia victim in Missouri, a traveler on trains and ocean liners, a monk in a Mexican monastery, and so on and on. He was reported driving different cars in a variety of states—although he had never learned to drive and instead rode in taxicabs or his own chauffeured vehicle. Nightclub jokes proliferated, such as "Judge Crater, call your office." And the phrase "to pull a Crater," meaning to disappear, became common. Stated one writer, "No missing man has ever had more doubles" (Clapp [1961] 2017, 2). (See also Nash 1978, 189.)

Joseph Crater

Joseph Force Crater (1889–1930?) was born to upper middle-class parents who ran a profitable produce market in Easton, Pennsylvania, as well as owning several peach orchards nearby. Crater graduated from college with honors and subsequently obtained a degree in law from Columbia University. He obtained a position as a law clerk and also became a university instructor. He married Stella Mance Wheeler on March 16, 1917—after first helping her get a divorce! From 1920 to 1926, he was secretary to State Supreme Court Justice Robert F. Wagner. In addition to an apartment on Fifth Avenue, the Craters acquired a woodland cottage in Belgrade Lakes, Maine

(Crater with Fraley 1964, 20–48).

Unfortunately, Crater was attracted to long-stemmed blossoms of the chorus-girl type, and among his mistresses he gave at least one, Constance Marcus, an allowance for her apartment for seven years, as well as helping her finance a small dress shop. Crater paid for his extravagances through increasing involvement in shady deals. Political influence having led to his being appointed a New York State Supreme Court Justice, a rebate of his first year's salary (the customary price of such a purchased post) was reportedly paid in thousand dollar bills (Nash 1978, 175–178; Clapp [1961] 2017, 3–5). At the time of his disappearance, Crater was facing election in November to secure a full fourteen-year term to that position.

There was also the Libby's Hotel scandal, one of many property receiverships that he handled in his legal practice. While his estate did receive his legally established fee, amounting to $10,000, for five months of receivership, the judge had expected more; in a last note to his wife, he mentioned a further "large sum due me for services" in the Libby's Hotel matter (Nash 1978, 186). Jay Robert Nash writes in his *Among the Missing* (1978, 173), "Joseph Crater was undoubtedly corrupt, a jurist whose nocturnal habits, underworld connections, participation in kickbacks, bribes and payoffs belied his moral office and his respected image, all reasons most given for his dramatic disappearance on the night of August 6, 1930."

But there was much, much more to what would inevitably prove a tangled tale indeed—one that has ensnared mystery mongers and would-be investigators alike.

The Last Day

Something changed for Judge Crater in the last days before his disappearance. He and his wife, Stella, were at their woodland retreat in Maine on August 3, a Sunday, when he received a mysterious telephone call. It came from New York and caused him to immediately begin dressing to return there. Noticing that he was visibly upset, Stella asked about the call. He told her it concerned a very important matter and muttered something about having "to straighten those fellows out"—an enigmatic statement that would create much speculation after his disappearance. Leaving Stella and the limousine at the cottage, he promised to return six days later for her birthday on Saturday, August 9. Crater then took the train to Manhattan. His wife never saw him again (Crater with Fraley 1964, 56–57; Nash 1978, 179).

For the next two days, August 4 and 5, Judge Crater was busy in his office, attending to various supposedly routine matters; August 5 was the most interesting. On that Tuesday, a woman using the name "Lorraine Fay" was consulting an attorney about possibly filing a breach of promise lawsuit against Judge Crater for $100,000. The attorney advised her she had no case, and she was never heard from again. That same day, Crater saw his doctor twice (reportedly about a fingertip smashed in a car door some weeks earlier, then later for dinner and card playing that lasted until 12:30 a.m.) (Clapp [1961] 2017, 7; Nash 1978, 180).

Judge Crater's disappearance took place the next day, Wednesday, August 6, 1930—one that was exceedingly busy. He rose about 9:00 a.m. and dressed in a dark brown, double-breasted suit with green pinstripes. He wore a shirt in his favored style with an old-fashioned stiff high collar, together with a tie, white spats, and panama hat. By about 11:00 a.m., he was at his office and sent his court attendant, Joseph L. Mara, to local banks to cash two checks made out by Crater totaling $5,150.

While Mara was gone at the banks, Crater hastily packed several files—amounting to six portfolios with sealed flaps (Tofel 2004, 29). When Mara returned with the cash, Crater thrust the pair of envelopes into his inside coat pocket and, with Mara's help, took the packed papers to his swanky apartment. There they were stacked on a chair, and Mara was the last to see what the police commissioner referred to as "unexplained papers." No doubt they were documents that might have incriminated Crater. In fact, that very day an investigation had begun into the job-buying scandal of a Crater friend and fellow judge named Martin J. Healy, in which Judge Crater—the district attorney thought—may have been involved (Crater with Fraley 1964, 68–69, 90; Nash 1978, 180–181).

What Crater did from noon through the afternoon is unknown. In the early evening, he visited a ticket agency on Broadway and arranged for a ticket to the comedy *Dancing Partner* to be obtained and sent to the box office of that theater, the Belasco. He then went to dine at Billy Haas's restaurant where he ran into a friend, theatrical attorney William Klein, who asked Crater to join him and his companion, showgirl Sally Lou Ritz. Crater told Klein he was about to return to his Belgrade Lakes getaway for a three-week vacation with his wife before his Supreme Court session reconvened August 25. When the three later exited the restaurant, Crater waved goodbye to his friends and began walking in the direction of the Belasco Theatre to catch, belatedly, the comedy. He did not take a cab as first erroneously reported. The single ticket was subsequently picked up at the box office, presumably by Judge Crater. Here, his trail goes cold ("Joseph Force Crater" n.d.; Tofel 2004, 31–32).

Murder?

The judge failed to appear at the Belgrade Lakes cottage on August 9 for Stella Crater's birthday. Phoning friends in New York, she was assured nothing was wrong. Nevertheless, she sent the chauffeur to check out the apartment. He found nothing amiss. All the judge's thirty-some suits were hanging in the closet, except the brown pinstripe he had worn on the day he disappeared. Significantly, all the judge's luggage was there, and his monogrammed card case, pen, and pocket watch were on the dresser. The police sensibly theorized that these had been left behind because August 6 had been a sultry day and Crater had worn no vest in which they usually were carried.

Stella herself, having suffered an emotional collapse, remained in Bel-

Postcard from Belgrade Lakes, circa 1930–1945. Credit: Boston Public Library (Flickr)

grade Lakes until coming to the city apartment months later, on January 18. Three days later, she had occasion to go to what has become known as a "secret drawer" of a bedroom bureau.[1] There, she discovered what some writers have called a manila envelope, but it was actually four such envelopes.

The envelopes contained: (1) cash amounting to $6,690 and three checks for $500, $12, and $9 made out in her husband's handwriting to himself; (2) four insurance policies totaling $30,000 made out to Stella as beneficiary; (3) a copy of Crater's will, written five years before, with Stella as beneficiary; and (4) a three-page penciled memorandum, to "S.M.W." (i.e., Stella), marked "confidential" and listing some twenty persons or companies owing him money, from which she might be able to collect. (All would later deny the obligation except Libby's Hotel, which did pay her a receivership fee due Judge Crater.)

The latter memorandum was all in Joseph Crater's handwriting, although badly scribbled and partially indecipherable.[2] The items in the manila envelopes were such as would customarily have been stored in a safety deposit box, but when Crater's bank box was opened it was empty (Crater with Fraley 1964, 94–96; Clapp [1961] 2017, 9–10). A grand jury began an investigation of the Crater case in October but was unable to reach any useful conclusion about his disappearance ("Joseph Force Crater" n.d.; Tofel 2004, 138–139).

Throughout the years since Crater's disappearance, most investigative writers have assumed he was murdered. Perhaps the most imaginatively far-fetched scenario was that conjured up by Stella Crater's attorney, Emil K. Ellis, who brought suit for her against the insurance companies. Ellis's notion was that Crater had withdrawn the $5,120 from the two banks to pay off a showgirl who was blackmailing him; that, in an ensuing scuffle with two thugs accompanying her, Judge Crater was unintentionally killed; and that his body was taken to New Jersey where it was cremated through use of a forged death certificate. Stella railed against this bogus tale, but Ellis gave it a try. Nothing came of it, although the insurance companies did settle the matter for the policies' face value, $20,561 (Crater with Fraley 1964, 135–137, 154–155; Clapp [1961] 2017, 10).

Another silly homicide claim was advanced in 1955 by the supposed Dutch clairvoyant Gerard Croiset, who purportedly solved crimes for police in the Netherlands. Croiset, in an alleged trance, handled a photo of Crater and divined that it depicted a murdered man whose body was buried at a site allegedly indicated by a vague sketch. New York police did search around a house where political bosses sometimes held parties, but after digging several holes found nothing (Nash 1978, 188).

The problem with the homicide theories is that they never offered a motive for someone to murder Judge Crater, and police detectives never found a shred of evidence to support the theory that Crater died at the hand of another. (On June 6, 1939, Joseph Force Crater was declared legally dead. The year before, Stella had remarried. She died in a nursing home in 1969 [Tofel 2004, 185–186]).

Planned Disappearance?

For their part, NYPD officials came to the conclusion that Judge Crater was responsible for his own disappearance—that it was, according to commissioner Edward P. Mulrooney, "premeditated" (Clapp [1961] 2017, 11). The evidence for that voluntary disappearance theory is plentiful. As we have seen, it includes disposing of presumably incriminating papers from his files; clearing out his safety deposit box; and leaving cash, checks, and instructions for his wife, placed in the bureau's secret drawer. (I believe this is what he was doing on the otherwise unaccounted-for afternoon of his last known day.) Crater even stated to his assistant and a friend that he was going to go away but gave different accounts of where and for how long (Clapp [1961] 2017, 7–8). Clearly the money drawn on his last day was not intended for him to disappear but rather to provide, as best he could, for Stella's future (Tofel 2004, 147).

And yet the overall effect of his premeditated disappearance was that it was to be permanent—that is to say, final. He was a man who was clearly putting his affairs in order. As well, he took with him neither clothing, luggage, nor personal items of any kind. The simplest assumption is that he would have no need for these. At this point, we must ask whether Judge Crater might have decided on suicide due to the seemingly impending personal and professional scandals that threatened to keep him from achieving his life-long goal.

It is now standard procedure in death cases, where suicide is a possibility, to conduct what is called a "psychological autopsy"—that is, an investigation of a decedent's mental state prior to death. (See Nickell and Fischer 1999, 255, 264; Nickell 1992, 117–120. See also Nickell 2005, 28–31.) Such a study can be illuminating, as I believe it is in the case of Judge Crater.

On August 1, when Crater visited Senator Wagner, whose support he hoped for in the fall election, friends later observed that he came away seeming notably "depressed" (Manning 1950). Two days later, upon receiving the mysterious call at his retreat, he appeared to his wife quite visibly upset (Nash 1978, 179). About this time, he showed friends he had a gun, ostensibly for protection, although it appears unlikely that his life was ever in danger. He may have intended the gun for another purpose.[3] On the sixth, when his attendant Mara helped him transfer files to his apartment, Mara described Crater as being secretive and seemingly depressed (Clapp [1961] 2017, 10). Writes Nash (1978, 181), "It is not difficult in hindsight to speculate that he was worried, perhaps terrified, of investigations that might lead into his private affairs and possible malfeasance of his judgeship."[4]

Crater's mistress, Constance Marcus, had expected to dine with him on the night he disappeared, but that never happened. He left her thinking of him. She stated that he had previously sighed: "My idea of being at peace with the world, complete, everlasting peace, is to go into a monastery and never come out again." During Crater's last visit on July 24, he had told her: "I feel that I've already quit the world, Connie. Don't try to drag me back" (Nash 1978, 187). That statement seems quite telling. Even more so is the letter he left Stella in the secret drawer, intended as his final communication with her, closing out his life. It ended: "I am very weary. Love, [signed] JOE" (Crater with Fraley 1964, 95).

Feeling as he did, that any peaceful life was over, Judge Crater naturally gave thought to the consequences suicide would cause. To eliminate the common stigma to such an act, and divert as much attention from it as possible, as well as to provide for his wife (both physically and otherwise), Crater sought the path so many have followed: He chose to cast his suicide in the guise of disappearance. It would prove a phenomenally successful choice.

He had simply to accomplish two relatively easy things. First, he had to get rid of the incriminating papers he had already transferred from his office to his apartment. I suspect he hand-carried those in a couple of trips to some nearby trash container where they would never be seen again. He could have gotten rid of his own body in the same effective way. For instance, late that night, he needed only to climb into a large industrial garbage bin, cover himself in cardboard or other debris, and steel himself for the pistol shot. Such a single noise would probably pass as car backfire, if anyone heard it at all; unrepeated, it would be insufficient to lead anyone to the site. It would constitute a great disappearing act, as the brilliant and determined Judge Joseph Force Crater would know it would. ■

Notes

1. It had three drawers across its top, but the middle one, having a key, was inadvertently hidden by the scalloped edge of the bureau's cloth top cover. (See Crater with Fraley 1964, 94; cf. Nash 1978, 185; Tofel 2004, 140.)

2. The text of the memorandum is given in Crater with Fraley 1964, 94–95. It was later sold at auction in 1981. (See "Joseph Force Crater" n.d., reference 47.)

3. As a homicide consultant, I once worked a case (Nickell 1992, 107–129) in which a man faked his suicide as a homicide so his family could collect $1 million dollars in insurance.

4. The Crater disappearance was the inspiration for at least one novel, Joan Sanger's *The Case of the Missing Corpse* ([1936] 2014).

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[NOTES ON A STRANGE WORLD MASSIMO POLIDORO

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The 'Failed' Psychic: A Sad Story and a Warning

In January 1981, U.S. television and newspapers began to pay attention to a young man who introduced himself with the mysterious and exotic name of "Song Chai" and claimed to possess extraordinary psychokinetic abilities. The young man recounted that he had been in Tibet for years, where a spiritual master had taught him to discover and then expand his mental powers. Back in the United States, he had opened a martial arts gymnasium in Salt Lake City, Utah, where he said he could teach his students not only karate but also the ability to move objects with the power of thought.

His demonstrations were particularly spectacular as well as novel. James Hydrick—his real name—would place a pencil balanced on the edge of a table, then concentrate, and the pencil would slowly rotate on its own. If anyone suspected that he was blowing on it, he would turn his head to the side, and the pencil would keep moving. He was also able to make the pencil move after it was poised on a pedestal and covered by an upside-down aquarium tank. In another demonstration, the young man half-opened a large telephone book, concentrated, made strange movements with his hands, and, after a while, one or two pages turned over as if moved by an invisible hand.

In his gymnasium, Hydrick would introduce himself to his students as someone who had learned to make himself invincible and would invite them to hit him in the stomach, squeeze his neck, and attack him in various ways. He would show that he could resist and felt no pain. In addition, to show the students that they too could control matter using only their minds, he would have them lie on the ground and concentrate. After a few moments, the large boxing bags hanging from the ceiling at various points in the gymnasium would begin to swing.

From left to right: James Hydrick, Bob Barker, and James Randi on *That's My Line*. Photo credit: YouTube user Pato E.

Various broadcasts invited him to demonstrate his skills on TV. For one show, *That's My Line*, the writers thought of calling in James Randi. Hydrick would try to win the $10,000 prize put up for grabs at the time by Randi for anyone who could demonstrate any paranormal faculty under controlled conditions.

In the first part of the program, which aired on CBS on February 24, 1981, Hydrick performed as he usually did, moving the pencil and turning the pages of the telephone book. For the second part, the actual experiment was scheduled. Randi explained that the test would focus only on the second demonstration with the phone book; he would not consider the pencil test. As he explained, the air conditioning system in a TV studio was sufficient to make the pencil rotate, and Randi demonstrated this to the viewers by placing a pencil on the edge of a table and letting the current sway it.

Hydrick agreed to proceed with the second test, at which point Randi introduced his controls. He removed a few Styrofoam flakes from a jar and distributed them around the telephone book. This, he explained, would show immediately whether the pages gyrated due to a psychokinetic force or, instead, due to a current of air created by Hydrick's hand movements or breathing.

Danny Korem. Image credit: Maink12 (Wikipedia)

Hydrick looked confused but agreed to try. For the next ninety minutes (later cut from the program), Hydrick walked back and forth and waved his hands slowly in front of the book, but nothing happened. Eventually, he gave up and said that the Styrofoam and air conditioning created "a static electricity effect" that kept the pages glued to each other. Neither Randi nor the jury, which included parapsychologist John Palmer, accepted Hydrick's justification, and the broadcast ended with the psychic surrendering (Randi 1981).

In the meantime, another magician, Danny Korem, had started on his own to follow Hydrick in his demonstrations and film them. Korem, too, suspected that Hydrick was blowing particularly skillfully on the pencil and guide pages to make them move, and he confirmed this hypothesis in repeated meetings with the psychic. Once he asked Hydrick to transfer the power to him, and by blowing in the same way himself, Korem was able to rotate a bill placed under an upside-down aquarium. Korem had noticed that if he blew on the surface of the table, the air filtrated under the aquarium and moved the banknote. In the film of this episode, Hydrick's stunned expression can be seen. Korem also discovered that the boxing bags in Hydrick's gymnasium swayed only at three o'clock in the afternoon, that is, when the sun beat down on the old aluminum roof causing it to expand and, as a result, move the hooks to which the bags were attached.

After a few months, Korem made up his mind to reveal to Hydrick that his game had been discovered and that he had better tell the truth. Hydrick, who also had a record for robbery and kidnapping, reacted violently. In filmed footage, later contained in the documentary *Psychic Confession*, he is seen punching a table and kicking it in anger and then calming down and agreeing to tell his story.

Hydrick had lived a very unhappy childhood. As a child, he had been beaten and molested by his parents, who eventually abandoned him for nine years in a psychiatric hospital. His motivation had been revenge against an adult world that had always rejected and mistreated him: "I wanted to show how stupid the world was," he told Korem, "how idiotic America is. They were calling me stupid … so how come they all fell for it? They kicked me all my life; I just wanted to prove that I exist too" (Korem 1988).

Hydrick's story did not end well. The man ended up in jail for unreported firearms possession, and Randi, upon discovering his sad story, wrote to him trying to encourage him to pursue a career as a magician once he got out of jail. Because he was good at it and could be very persuasive, it might be a road to pursue, and Randi offered to help him find a manager. But he never received any response to his letters.

Having served his sentence, Hydrick was released from prison but soon was arrested again and convicted of harassing five boys. He attempted an escape and, when caught, served his sentence and was eventually committed to a psychiatric hospital in California, where he still resides. When he was interviewed a few years ago for *An Honest Liar*, the film about Randi's life, he burst into tears when he learned about the letters Randi had written to him. No one had ever delivered them to him, and he thought about how his life could have been different if only he had known about the hand that the man he believed to be an enemy had generously extended to him.

Hydrick's case, once again, confirms that people generally do not follow certain paths out of malice or ignorance. His case shows you cannot judge someone else without knowing their history, and Randi, in only questioning Hydrick's claims and not judging his character, had been correct as usual. When he had later learned of Hydrick's troubles, he immediately tried to help him, because Randi always cultivated generosity.

This is a lesson that still resonates with me today, when I am faced with the mindless refrains repeated by those who reject reality. Calling these people idiots or marginalizing them will only exacerbate their beliefs, and it is precisely in isolation that resentment, anger, and the desire for revenge are born. Hydrick's case confirms this in some ways. Similarly, downplaying the concerns of the believers is the surest way to leave them at the mercy of conspiracy mongers and cunning politicians who know how to exploit their fears and frustrations. Let's try to build bridges and not walls. ■

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[THE PHILOSOPHER'S CORNER MASSIMO PIGLIUCCI

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The Fallacy Game

One of the first things one learns as a skeptic is the classification of so-called logical fallacies. Indeed, there is a whole website, Your Logical Fallacy Is, devoted to instructing skeptics on how to play the fallacy game (see https://yourlogicalfallacyis.com/). The popular internet destination (290k "likes" and counting) tells us: "This site has been designed to help you identify and call out dodgy logic wherever it may raise its ugly, incoherent head. Rollover the icons above and click for examples. If you see someone committing a fallacy, link them to it."

If only it were that easy. Skeptics, rightly, pride themselves in keeping up with the latest science. They are often not so keen, however, to keep up with the latest philosophy. Indeed, some of them are openly scornful of the entire field, which they see as useless navel-gazing (Pigliucci 2014). But the little-known fact is that argumentation theory moved beyond the notion of logical fallacies decades ago because it is deeply flawed, not very useful, and—as far as skeptics are concerned—a double edged sword. My friend and colleague Maarten Boudry gave SI readers a primer on this topic several years ago (Boudry 2017), but a quick refresher may be in order—especially given that several readers appear to have seriously misunderstood or unfairly dismissed Boudry (2018).

The first problem with the notion of logical fallacies is the way they are often used. The practice seems to be not to deploy them as tools for argumentation but rather as quick and simple ways to score a "gotcha!" moment with one's perceived opponent.

The second issue is that two can play the fallacy game. It has become increasingly popular for creationists, climate change deniers, vaccine "skeptics," and the like to play the very same "gotcha!" game that we do—often with (rhetorical) success.

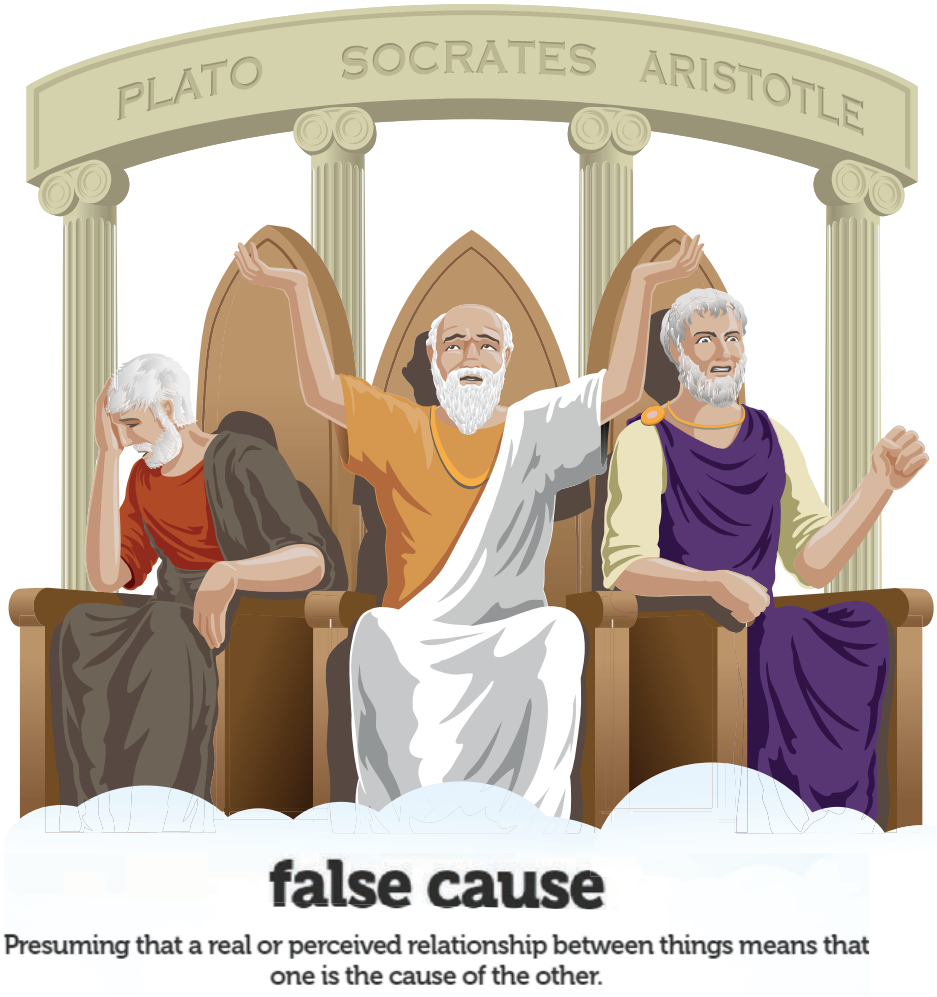
PLATO
SOCRATES
ARISTOTLE
false cause
Presuming that a real or perceived relationship between things means that one is the cause of the other.

Illustration Credit: https://yourlogicalfallacyis.com/

How is this success possible? Aren't skeptics well equipped to spot logical fallacies in others' reasoning and at the same time skilled at avoiding those fallacies themselves? Not really. This brings me to the third complication: logical fallacies *are not necessarily fallacious*—not all the time and not under all circumstances.

In fact, Boudry and I, together with our colleague Fabio Paglieri, have proposed a dilemma that we refer to as "the fallacy fork." It goes like this: On the one hand (first prong), if we describe logical fallacies by means of a formal argumentation scheme that is clearly invalid, then we won't find many ex-

amples of people that actually commit the corresponding fallacy. On the other hand (second prong), if we relax the argumentation scheme so that it captures real-life examples of reasoning, its validity (or lack thereof) will turn out to be a matter of specific epistemic circumstances.

Let's take an example to clarify. One of the most popular fallacies among skeptics is *post hoc ergo propter hoc*, Latin for "after this, therefore because of this." Say that someone takes a homeopathic pill and notices that a few hours later her fever is gone. The person in question is inclined to see this sequence of events as supportive of a causal link between the pill and the abatement of the fever. At this point, the skeptic smugly pronounces "*post hoc ergo propter hoc*" as if it were a Harry Potter incantation and walks away convinced that he has disposed of yet another ridiculous claim by a country bumpkin.

The same skeptic later on sits down for dinner at a restaurant and orders a plate of wild mushrooms. By the time he gets home, he has stomach cramps and spends the night at the hospital with a case of food poisoning. When the doctor asks him what happened, he confidently says: "I ate wild mushrooms; they were probably poisonous."

The problem is that the skeptic has used *exactly* the same argumentation scheme as the homeopath. Here is the scheme:

A occurs.

B occurred sometime after A.

Therefore, A caused B.

So, is this bit of reasoning fallacious or not? The answer is: it depends. If the claim is that the causal connection between A and B is inferred *solely* on the basis of the temporal sequence, *then* the reasoning is invalid, and we are staring at a fallacy. But very few people, if any, use the inference that way (not even homeopaths).

Rather, what is going on in *both cases* is that the reasoner—implicitly or explicitly—adds additional clauses to the above scheme. Something like this:

A occurs.

(I have independent evidence/reason to think that A usually/often causes B.)

B occurred sometime after A.

Therefore, A (probably) caused B.

Now this is a perfectly fine example of non-fallacious inference. The difference between the homeopath and the skeptic, then, is that the homeopath does not, in fact, have good independent evidence of a causal connection between the pills taken and the abatement of the fever. The skeptic, by contrast, has good reasons to think that some types of wild mushrooms cause food poisoning and that the mushrooms eaten for dinner were suspiciously similar to the poisonous variety, so the cook likely made a mistake.

In other words: whether *post hoc ergo propter hoc* is fallacious is a function of the specific epistemic circumstances. The reasoning form is neither always fallacious nor always valid; it depends.

The same analysis can easily be applied to several other alleged fallacies. Boudry, Paglieri, and I go through examples of *ad hominem*, *argumentum ad ignorantiam*, genetic fallacy, naturalistic fallacy, and *argumentum ad verecundiam*, to name a few.

Here is one alleged fallacy that supporters of pseudoscience have learned to throw back at skeptics. When we question a statement based on scripture and the religious person says that he believes it because God said it, we immediately go to "your-fallacy-is" and click on "argument from authority."

But then we turn around and claim that we line up to be vaccinated against COVID-19 because the experts tell us it is the sensible course of action. Again, the formal structure of the argument is exactly the same in the two cases. What's the difference between us and the Bible thumpers? It once more lies in the often-unspoken underlying assumptions and causal connections. If we had good reasons to think that God existed and communicated by dictating text to human beings, then surely it would be very rational to take his words into serious consideration. But the skeptic either dismisses the very possibility of God's existence or assumes for a variety of reasons that God would not talk that way, through those means and those people.

By contrast, we have a mountain of very good reasons to think that expert virologists and epidemiologists know what they are doing. Of course, it doesn't mean they are infallible; it just means that—other things being equal—it is a more rational bet to follow their advice than to go against it.

What we need, therefore, is a bit more humility as well as more familiarity with logic as actually practiced by contemporary philosophers, not as it was originally established by Aristotle (a philosopher, by the way!) more than two millennia ago. After all, when you look up something about astronomy, do you stop at Copernicus? Or, worse, Ptolemy?

All this presents us with a silver lining, however. We are now in a much better position to seriously and constructively engage supporters of pseudoscience. Instead of pronouncing a bunch of Latin words and walking away convinced we just dealt a (metaphorical) death blow to an idiot, we can sit down and seriously talk to the homeopath or the intelligent design proponent. We could, for instance, make the suggestion to set aside whether homeopathy and vaccines work or not and have a conversation about our respective underlying assumptions. What causal links are we each taking for granted and why? Which authorities do we trust and on what grounds? Because it is clear that we *all* trust some authorities and reject others.

After all, *skeptic* means inquirer. And inquiry is a process, not a set of canned responses meant to shut down one's interlocutor. Let us engage in constructive argumentation rather than epistemic bullying.

For more on this topic, please see "The Fake, the Flimsy, and the Fallacious: Demarcating Arguments in Real Life," by Maarten Boudry, Fabio Paglieri, and Massimo Pigliucci in *Argumentation* 29: 431–456, 2015. ■

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[REALITY IS THE BEST MEDICINE HARRIET HALL

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Health Effects of Loneliness

People have had to socially distance because of the pandemic, bringing more attention to the health effects of isolation and loneliness, and there is alarming news: According to the National Institute on Aging, the health risks of prolonged isolation are equivalent to smoking fifteen cigarettes a day (Kroll 2022). Social isolation and loneliness have even been estimated to shorten a person's life span by as many as fifteen years. According to a 2019 report of the National Institute on Aging, "Research has linked social isolation and loneliness to higher risks for a variety of physical and mental conditions: high blood pressure, heart disease, obesity, a weakened immune system, anxiety, depression, cognitive decline, Alzheimer's disease, and even death" (National Institute on Aging 2019).

In 2017, U.S. Surgeon General Vivek Murthy warned of a "loneliness epidemic" sweeping the country (Murthy 2017), and BBC News has pronounced loneliness a "hidden killer of the elderly" (Coughlan 2011).

But there are glaring problems with the way these risks have been reported. For example, the research only shows correlations, and correlation is not causation. However, an even bigger problem is that social isolation is often conflated with loneliness. They are not the same thing. Isolation is a fact; loneliness is a feeling. People who are socially isolated don't necessarily feel lonely, and people who are not socially isolated may feel lonely even when surrounded by other people.

Social Isolation Is Objective

Social isolation is objective and can be quantified: How many other people are you in regular contact with? But even this is not always straightforward. What does "contact" mean? Is it only face-to-face in-person contact or do emails and virtual meetings count? Does the quality of the contact matter? Does it make a difference whether the contact is supportive, hostile, or indifferent? How do you measure that? When Sartre said, "Hell is other people," he meant it to be conditional; it is only Hell if our relationships with them are bad.

Loneliness Is Subjective

Surveys have reported that loneliness

affects up to 61 percent of the population. But what do people mean when they say they are lonely? Loneliness is a feeling of being alone, of lacking companionship. According to the American Psychological Association, loneliness is a cognitive discomfort or uneasiness from being or perceiving oneself to be alone, the emotional distress we feel when our inherent needs for intimacy and companionship are not met, a perceived discrepancy between desired and actual social relationships (in terms of either quantity or quality) (Chai 2022).

Loneliness also describes what you feel when you're in a crowded room and aren't connecting with the people around you as much as you'd like to be. It may involve:

- Feelings of sadness, emptiness, discomfort, or disconnectedness;
- Feeling left out or isolated from others;
- A longing for companionship;
- Feeling like you're misunderstood or not heard (Note: this is a common complaint of mass shooters and may be one of the root causes of gun violence.);
- Feeling isolated even when you're surrounded by others;
- Feeling exhausted or burnt out by social interactions;
- Feeling insecure;
- Ruminating and reminiscing on the past. (Chai 2022)

Effects on Health

Studies have reported a 29 percent increased risk of premature death among those living alone and a 26 percent increased risk among those feeling lonely. Loneliness has been linked to a 29 percent increased risk of heart attack and a 32 percent increased risk of stroke. Loneliness is associated with a 40 percent increase in the risk of dementia, an increased susceptibility to colds, and an increase in the risk of developing depression (Chai 2022). But these are only correlations, not proof of causation. The cause might be some confounding factor that has not been considered.

In addition to these physical problems, some research suggests that loneliness is associated with an increased risk of certain mental health problems, including depression, anxiety, low self-esteem, sleep problems, and increased stress (Mind.org.uk 2019). A 2010 meta-analysis found that "the influence of social relationships on the risk of death are comparable with well-established risk factors for mortality such as smoking and alcohol consumption and exceed the influence of other risk factors such as physical inactivity and obesity" (Holt-Lunstad et al. 2010).

But it's not all bad news. Research has also shown that the ability to tolerate being alone is correlated with positive effects such as relaxation, reduced stress, greater happiness, less depression, and lower risk of burnout. Alone time can be time to map out goals, to focus on caring for oneself rather than on caring for others, facilitate personal growth, focus, and think creatively. People who spend time alone may develop new coping skills and become more resilient, better people.

Living Alone Doesn't Equate to Loneliness

A widow I knew was the only person living in her home but claimed she lived with all her best friends: her piano, her sewing machine, her books, etc. Being alone may be due to outside circumstances or it may be a voluntary personal choice. Some people choose to be alone and are happy without much contact with other people. For them, being alone doesn't cause feelings of loneliness.

I've been watching the National Geographic series *Life Below Zero*, which chronicles the lives of people living off the grid in the wilderness of Alaska, subsisting by hunting, fishing, and trapping. They have deliberately chosen a lifestyle that minimizes contact with other people, because that lifestyle offers them independence, adventure, and pride in self-sufficiency and overcoming challenges. One of them, Sue Aikens, is a grandmother. After two bad marriages, she had no interest in trying that again. She now runs Kavik River Camp on the North Slope. She maintains the runway and does all the repairs and improvement projects by herself, demonstrating great resourcefulness and ingenuity. She loves her solo lifestyle, even after a grizzly bear attacked her and she was not found for ten days. She sees herself as part of the natural environment: the bear was an apex predator; she was prey. The bear saw her as dinner. She says other people tried to keep her from trying out her quirky, unorthodox solutions to the problems she faces, solutions that may not be the best but that get the job done. She prides herself on not needing help from other people. She is alone for most of the year but is always so busy working on new projects that she doesn't have time to feel lonely.

Another featured Alaskan is Jesse Holmes, a dog musher who regularly competes in the Iditarod dogsled race. He finished in third place in 2022. He is the only human living in Brushkana, but he is neither alone nor lonely. He shares his home with dozens of sled dogs and is strongly motivated by his goal of creating the perfect winning team through

breeding and training.

People are more vulnerable to loneliness due to external circumstances, such as the death of a spouse, living in certain circumstances (such as being a single parent or caregiver who finds it hard to maintain a social life), or belonging to groups such as minorities who have experienced bias or persecution. In contrast, "some people experience deep and constant feelings of loneliness that come from within and do not disappear, regardless of their social situation or how many friends they have" (Mind.org.uk. 2019).

Coping with Loneliness

Different individuals react differently to feelings of loneliness. Their responses run the gamut from destructive to constructive. Some perceive loneliness as an undeserved punishment inflicted on them by circumstances beyond their control and may ruminate, obsessively thinking about their loneliness, feeling sorry for themselves. This tends to intensify and prolong the negative feelings, making them worse, and may lead to poor health.

At the other end of the spectrum, some people view loneliness as just another of the many challenges life offers. They may see their loneliness as a mandate to seek solutions and as a welcome opportunity for personal growth and the development of better coping skills.

Those who are socially isolated can take actions to reduce the isolation: volunteering in the community, joining a class or club, adopting a pet, getting involved with church activities, joining a dating service, helping out in a school, tutoring children, teaching a skill, coaching a team, taking the initiative to phone friends or relatives they haven't talked to in a long time, using Skype or Zoom to meet virtually, interacting with strangers and casual acquaintances, helping a neighbor, visiting the sick and the elderly; the opportunities are nearly limitless. And they can always seek help from a therapist.

Ruminating thoughts can be stopped. An article on Healthline provides ten tips on how to stop them, from distraction to avoiding triggers, from questioning the validity of the thoughts to seeing a therapist (Cirino 2019).

Feelings of inferiority can be counteracted by pushing those thoughts away and by seeking out distractions and sources of joy. People can tell themselves it doesn't matter what others think of them; what matters is what they think of others. Constantly comparing oneself to others is counterproductive. It makes more sense to compare their past self to their present self and think about recent improvements and accomplishments.

People who are happy don't feel lonely. Positive psychology has found that the three sources of joy are pleasure, challenge, and meaning (Rees 2012). If these can be combined, all the better. Great satisfaction can be found in meeting a challenge, solving a problem, accomplishing something difficult, and meeting personal improvement goals such as losing weight or exercising.

An AARP study identified these sources of joy (Kroll 2022):

- Being outdoors (87 percent)
- Physical activity (72 percent)
- Hobbies, skills, or projects (72 percent)
- Connecting with others in person (83 percent)
- Connecting by phone or virtually (79 percent)

The famous quote attributed to Alexander Chalmers is "The three grand essentials of happiness are: Something to do, someone to love, and something to hope for.":

1. Something to do. That might be anything from daily chores such as brushing your teeth and doing laundry to grand projects such as writing a book. Anything that keeps you occupied and moving forward will distract from lonely thoughts.

2. Someone to love. It needn't be a person. You might love a pet, a cause, or an inanimate object. Anything that produces positive emotions and directs your thoughts outward.

3. Something to hope for or something to look forward to. We all have things to look forward to if we would just stop to recognize them. It could be something big such as a planned vacation, the birth of a grandchild, or a child's graduation or wedding. Or it might be something small such as the next episode of your favorite series on TV or anticipating the way a cake will taste when it comes out of the oven. Anything that directs our thoughts to the future can be a source of happiness and a reason to keep living.

The bottom line: despite those scary news stories, neither social isolation nor feelings of loneliness have been proven to adversely affect health, and both are modifiable. If you're worried about risk factors, worry about the real ones that have been proven to increase the risk of unnecessary death and disability. Stop smoking, wear your seatbelt, get vaccinated, and follow science-based diet and exercise recommendations. ■

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[BEHAVIOR & BELIEF STUART VYSE

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Scientific Contagion Spoils the Magic of Religion

University of Pennsylvania psychologist Paul Rozin is a magician—of a sort. A century before Rozin began practicing magic, Scottish anthropologist James Frazer (1854–1941) coined the term *sympathetic magic* in his classic volume *The Golden Bough* (1935) and identified two primary principles of sympathetic magic: *similarity* and *contagion*. According to similarity, things that have the appearance of a person or an object have a connection with that person or thing. As a result, effigies that are burned are sometimes believed to do harm to the person depicted by the effigy, and voodoo dolls and poppets are abused in an effort to hurt their subjects. In the case of contagion, objects that were once in contact with each other are thought to have a lasting connection. As a result, voodoo dolls are often constructed with the hair of their intended victims to provide a link to the person.

Frazer was a Victorian, and consistent with the views of his age, he believed that sympathetic magic was the province of "primitive" peoples. But a hundred years later, Rozin and his colleagues were skeptical. In a series of famously clever experiments, they tested the principle of similarity by presenting Ivy League college students with pieces of chocolate that had been shaped like dog poop. Perhaps not surprisingly, many of these very smart young people were quite reluctant to eat the chocolate poop—despite understanding that it was just candy. In a test of contagion, participants were asked to drink from a cup of water that had briefly come into contact with a sterilized cockroach. Most of them were reluctant. Similarly, they were not excited about the prospect of trying on a shirt previously worn by a disliked person—even if it had been laundered in the meantime (Rozin et al. 1986).

If this weren't enough, Rozin and his group went on to show that contagious magic could even flow backward in time. During the early years of the HIV crisis, Rozin showed that, as might be expected, people were reluctant to try on a sweater that had been previously worn by an AIDS patient, but a substantial number also rated staying at a Holiday Inn less attractive if the hotel was going to be converted into a hospital for AIDS patients the following year (Rozin et al. 1992). None of this made rational sense, but Rozin and his colleagues demonstrated in rather dramatic fashion that irrational sympathetic magic was not restricted to other, "primitive" people—whoever they might be. Many of us fall prey to the influence of sympathetic magic.

Scientific Contagion

Much of the research on magical contagion has employed things that provoke disgust or fear of illness, but a new study suggests that scientific processes—which are presumably not disgusting—can have a similar kind of contagious effect in reverse. But first a little background.

The starting point for this research was the widespread use of holy waters. In many religions, water is given magical significance. In Christian tradition, for example, water that has been blessed by a priest is transformed into holy water that many believe has curative or other beneficial properties (Vyse 2020), and in many religions, certain rivers or wells are said to have religious significance and their waters are believed to have special curative or purifying powers. In Islam, the Zamzam well in Mecca is thought to have special significance, and many pilgrims who come to Mecca drink the water. Similarly, the River Jordan in the Middle East has religious significance for Jews and Christians and is sometimes used in baptisms or other purification rituals. For Hindus, the waters of the Ganges (Ganga) River are similarly believed to be of religious significance, and many religious tourists visit holy sites along the Ganges every year.

In today's modern world, many of

Holy waters available for sale on Amazon.com. From left to right, water from the Zamzam well in Mecca, Jordan River water, and Ganges River water.

Lady Ganga, Michele Baldwin, paddling on the Ganges River. (Source: Wikimedia)

these waters are available on Amazon.com. When I last checked, five liters of water from the Zamzam well could be purchased for $64.99, and, according to the producer, it is "said to be the cure for whatever purpose it is has been drank according to the speech of the Prophet Muhammad, peace be upon him." Similarly, 300 ml of Jordan River water can be purchased for the more reasonable price of $9.29. Finally, I found 100 ml bottles of Ganges River water available for $8.99 (see photo on p. 30).

However, these ancient beliefs about holy waters have come into conflict with the modern world over concerns of safety. In many cases, rather than curing your ailments, drinking these holy waters can make you sick. For example, in 2011 the BBC raised concerns about Zamzam well water, which they found contained high levels of arsenic (Lynn 2011), and studies of the Ganges have revealed dangerously high levels of heavy metals (Chaudhary et al. 2017). Despite these troubling test results, many people, believing the water is safe, drink it and use it for religious purposes.

It is in this context that two Indian researchers chose to study whether believers thought that treating holy water scientifically would change its magical powers—an effect that would be a kind of scientific contagion (Mukherjee and Mukherjee 2022). In a series of experiments, the researchers asked Indian participants—most of whom subscribed to Hinduism—whether submitting holy waters to a "scientific process" before allowing people to use it for religious purposes or to drink it would "affect its acceptability for religious use." They were also asked about its acceptability for drinking after the scientific process (Mukherjee and Mukherjee 2022, 1432). The results were split: 70 percent said the process would *decrease* the water's acceptability for religious purposes, but 78 percent said it would *increase* the water's acceptability for drinking.

One of the factors the researchers investigated was the bias for things that are "natural." In an earlier study, Rozin suggested that, in the case of food and drink, Americans' concept of "naturalness" had more to do with the history of the product than it did the actual contents (Rozin 2006). Following Rozin's lead, the Mukherjees asked a different group of participants about holy water that had minerals removed in a scientific process and then added back into the water, leaving the water completely unchanged from its original state (Mukherjee and Mukherjee 2022, Experiment 3). Under this scenario, the liquid had been subjected to a scientific process—presumably considered *un*natural by most people—that, in the end, had absolutely no effect on the water. In this case, the respondents said that the acceptability of the water for drinking would be unchanged, but its acceptability for religious purposes would be significantly reduced. Scientific contagion vanquishes religious magic. This doesn't seem entirely rational but appears to show that, at least in the minds of Indian people, scientific processes are in conflict with religion. This is just one study by one group of researchers, but it will be interesting to see if scientific contagion plays a role in other conflicts between religion and science.

Lady Ganga

Given the recent death of our editor, Kendrick Frazier (1942–2022), I cannot write about the Ganges River without mentioning Ken and Ruth Frazier's daughter, Michele Baldwin (1966–2012), who was known as Lady Ganga. Baldwin was diagnosed with cervical cancer in 2009, and after treatment and a period of remission, the cancer reoccurred. Near the end of her life, Baldwin undertook a standup paddleboard expedition down the Ganges River to bring attention to cervical cancer and other preventable forms of cancer. In the process, she covered 700 miles of the Ganges in twenty-one days, setting a woman's record for paddleboarding. Her journey was the subject of two documentary films, *Lady Ganga* and *Paddling the Ganges.* I invite you to visit Michele Baldwin's Wikipedia page (https://en.wikipedia.org/wiki/Lady_Ganga) or the Lady Ganga website (https://www.lady-ganga.world/) to learn more about her remarkable life. ■

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[THE PRACTICAL SKEPTIC MICK WEST

Mick West is a writer, investigator, and debunker who enjoys looking into the evidence behind conspiracy theories and strange phenomena and then explaining what is actually going on. He runs the Metabunk forum, tweets @mickwest, and is the author of the book *Escaping the Rabbit Hole*.

Into the Lion's Den: Conferences as Skeptical Activism

Practical skepticism often involves engaging with the people whose ideas you are skeptical of. One of the best ways of doing this is by attending a conference held by and for those people.

I've been to a few such events; the first one was titled Consciousness beyond Chemtrails. I attended that one mostly because of my interest in the chemtrails conspiracy theory (which holds that airplane contrails are a secret spraying program for nefarious purposes), but half the audience was more interested in the "consciousness" aspect. It was an interesting blend of crystal healing and incorrect takes on the basic physics of cloud formation.

The people there were mostly friendly. I contacted the organizer ahead of time to ensure there would be no problem with my attending. I also chatted with him at the conference, and he seemed like a perfectly normal man—just one with a few odd beliefs.

There were, however, a few tense moments. At one point, I moved closer to the stage during a talk by a prominent chemtrail promoter, and a large acquaintance of his ran after me, presumably thinking I was going to disrupt proceedings. I only was going to join a couple of the promoter's fans, with whom I'd been conversing online. That seemed to confuse the self-appointed security guard, who hovered nearby.

Later I was angrily confronted by a small group of people outside in the darkened parking lot. They demanded to know how I could hold the positions I did and how I could live with myself denying the "truth" about chemtrails.

I was unafraid. Conspiracy theorists are, like most people, good people. They are misinformed but believe that what they do is for the good of humanity. The majority don't like violence, especially not those who would also attend a conference about "consciousness." So, I explained what I honestly believe, had a nice chat, and eventually made new friends.

A similar situation happened a few years later when I went to a flat-earth conference. It was held in a large conference hall in Las Vegas, but the conference was sparsely attended. The organizer, "Mad" Mike Hughes, had somehow assumed everyone would just know a flat-earth conference was happening and did almost no promotion. As a result, the attendees were mostly the presenters, the vendors, and their

friends.

But friendly they certainly were. Everyone knew I was the token skeptic (Hughes had invited me to give a presentation and participate in a debate), but nobody was aggressive toward me. I gave my presentation to mostly blank stares, and everyone politely applauded.

Later I chatted with some attendees about the material I had presented. This was invaluable—not because I managed to convert anyone but because I got a great sense of their thought processes, including which ideas were driven by a simple rejection of the authority of science and which were driven by a sense of community and shared beliefs.

It was remarkably illuminating to try to explain a relatively simple concept such as why the entirety of a distant mountainous island would be visible if the earth were flat (Catalina Island, for example, is half-hidden by the curve of the Earth when viewed from Santa Monica). Debating this online often gave me the impression that their rejection was simply trolling. But up close and in person, it was very clear that they actually did not understand even the very basics of what I was explaining. They stared blankly—not in aggressive rejection of my arguments but because my arguments made no sense at all. I needed to recalibrate, and I spent many hours in conversation trying to do just that. A small amount of progress was made.

I also spoke with Hughes, who seemed like a quite reasonably nice and polite man. It was clear that he was not driven by seeking to explain that the earth is flat but rather wanted to use the topic to promote his stuntman career. He seemed very open to believing anyone's viewpoint and was very much of the mindset that if you try hard enough, you can do anything. That credulity and optimism may have led to his early demise a few years later in the crash of a steam-power rocket he'd built with a friend to (ostensibly) observe the lack of curvature of the earth.

Seeking Legitimacy

UFO researchers differ greatly from chemtrails and flat earth proponents, but they share a common struggle: the quest for legitimacy. They all want people to take them seriously.

The inaugural Limina conference of 2023, held virtually, was billed as "an exploration and critical assessment of crucial social, political, and cultural issues connected with [UFOs]." The intent was to bring together "a unique blend of distinguished scholars and researchers from the sciences, the humanities, and social sciences, along with accomplished non-academic professionals who have an abiding interest in the serious study of unidentified aerospace phenomena."

The existence of the conference illustrates a paradox. UFOs are a serious issue because, if unidentified objects are flying in our airspace—especially our military airspace—then it's a national security issue. Such objects are, at the very least, a distraction and a waste of time because they need to be tracked and avoided. They might also represent a collision threat, making the airspace unsafe. There's also the possibility that some UFOs are foreign intelligence-gathering platforms or even some type of enemy weapon. So, UFOs are a very serious issue.

But it's not always taken seriously. People think that *UFOs* mean *aliens in flying saucers*. The name was changed from UFO to UAP (unidentified aerial phenomena) to try to remove some of that stigma. But the real problem UFOlogy has is that most UFO enthusiasts think that extraterrestrials actually *are* flying around in UFOs or UAP. So, it doesn't really matter what you call it; the end result is that people are not going to take you seriously when there's zero indication that aliens are visiting and zero hard data that UFOs are actually doing anything that human craft cannot do.

A lack of hard data to analyze (and an unlikely hypothesis) means a lack of credibility. But you can't get that hard data and analysis without serious science, and serious science won't tackle the topic because it's not taken seriously.

A conference such as Limina attempts to jumpstart that paradoxical situation. Traditional UFO conferences are very much at the "woo" end of the science/pseudoscience spectrum and

thus don't help with the attempt to be taken seriously. The Limina organizers attempted to focus only on the more tangible aspects in a manner consistent with modern academic practice. They also sought to bring together the handful of organizations making efforts to apply rigorous science.

The first day largely consisted of talks rooted in the humanities. There were talks on the history of UFOs, the psychology of belief and disbelief, and a comparative study of UFOlogy in the context of Apophatic Mystical Literature. The day continued with a discussion about offering amnesty to people who suppress information about UFOs (which begged the question of how it is known there was something to suppress). Then there was a rather abstract talk on the philosophy of the science of UFOs. Finally, we got a word from the sponsors: Enigma Labs, a shadowy UFO startup that seems to be angling for government contracts to study UFOs.

The second day got more scientific, examining various efforts to rigorously search for anomalous phenomena. Various approaches were described, including an update on the Galileo Project (which I discussed in the November/December 2021 Skeptical Inquirer). While the approaches varied, they were all consistent in one thing: a lack of good evidence of flying anomalous craft

or aliens. Nevertheless, they all seemed optimistic about the future.

The third day focused on more technical investigations and gave me my chance to speak. My invitation had grown out of an argument on Twitter with Robert Powell, a member of the Scientific Committee for UAP Studies (SCU). Powell was the primary author of an SCU study of a famous UFO case in Aguadilla, Puerto Rico. On Twitter, I pointed out some error in the study, but Powell denied such an error existed.

Twitter isn't a great medium for resolving such disputes; however, the organizer of Limina, Michael Cifone, happened to see our exchange and invited us both to continue it in a debate on the Aguadilla case at the upcoming Limina conference.

I demurred, much preferring a straightforward discussion to a competitive debate, with its inherent expectations of winners and losers. My goal has always been to figure things out, and a debate invites the use of rhetoric purely for the purposes of persuasion instead of reason.

But Cifone persisted, and eventually we agreed that we would each give a talk at Limina. Mine was scheduled as the first of the day, and Powell's followed directly after.

Knowing the diverse range of the attendees, including academics from both the humanities and the STEM fields as well as various interested members of the public, I remembered the blank stares I'd received in response to my earlier technical presentation and endeavored to make this talk as accessible as possible.

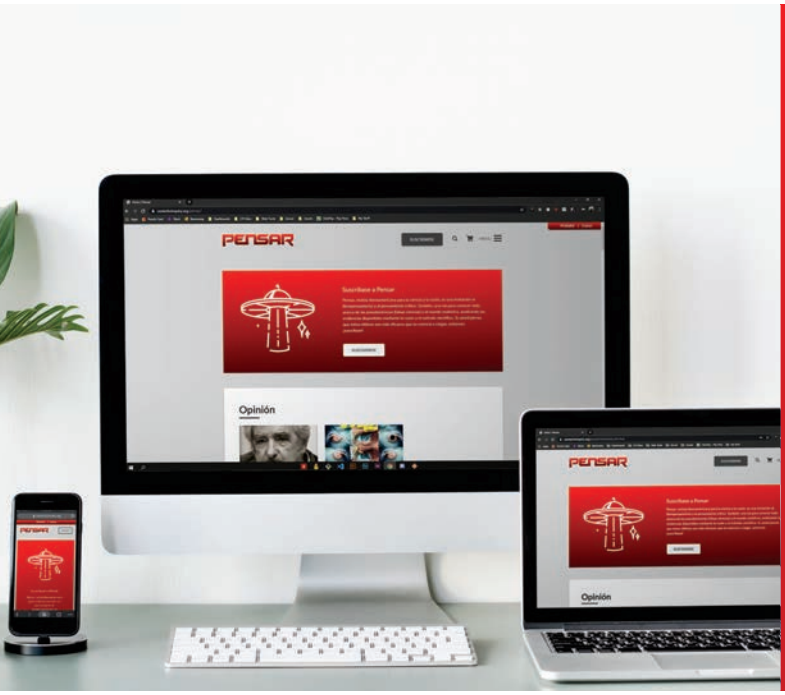
The focus was on how to extract data out of videos that would allow us to recreate the possible paths of a UFO in three dimensions and hence tell if it was doing anything amazing. After laying out the basics of my technique, I dove into the Aguadilla case. Being mindful of the audience, I took pains to present two hypotheses for what was seen in the video: one was a simple pair of wedding lanterns drifting in the wind in a straight line; the second was a highly anomalous craft that could fly underwater without slowing down while mirroring the motion of the plane taking the video.

My approach was simply to demonstrate that the more mundane hypothesis was possible. I carefully went through all the aspects of the video and showed how wedding lanterns were a good fit. In the end, I made the argument that, even though we can't disprove the anomaly hypothesis, because we have a more mundane explanation that fits without having to invent bizarre flying craft, Occam's razor demands we put it at the top of the list.

Afterward, Powell gave his talk, trying to show that the lantern hypothesis was untenable. Still, I think I'd made a fairly good case and, at the very least, swayed a few people into considering that the mundane explanation might be the best explanation this time.

Over the lunch break, I hung out with Powell and a few other attendees in a video chat room. It was all very friendly, and we further discussed the nuances of the case, deepening our understanding of the other's position.

Even in a virtual setting like Limina, face-to-face interaction is invaluable. It's difficult to gauge the intentions of a person from text alone. The internet is a wonderful communication medium, but the written word is a poor substitute for verbal communication. Emphasis and nuance in speech transmit far more accurately the mental state of an individual when compared to plain text. A conference is ideal for learning more about the thinking behind a topic you disagree with and getting a few more people to see that you also simply seek the truth. ■



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CRAIG A. FOSTER, EMALEE L. SICKLES, AND EMILY E. CAMP

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Wooooooo: Old Bovines in New Twaddle

Welcome aboard, friends! In "The Time Warp," we aren't limited to present-day examination. We use Skeptical Inquirer's rich history to examine skepticism … from the future.

On this voyage, we travel to Spring/Summer 1977 to review the second issue in the Skeptical Inquirer lineage (Vol. 1, no. 2).

Some context to summon the spirt of the time: English rock band The Clash released their first album, titled *The Clash* (April 8). *Star Wars: A New Hope* (then called *Star Wars*) appeared in theaters (May 25). Jimmy Carter awarded the Presidential Medal of Freedom posthumously to Rev. Martin Luther King Jr. (July 11). Elvis Presley died in his Graceland mansion (August 16).

Skeptical Inquirer was still titled *The Zetetic*, and the monochromatic magenta cover art from the previous issue became a dichromatic blue and green.

In "From the Editor," Marcello Truzzi wrote that the response to the first issue was "gratifying" and the subscription list was near 1,000. Truzzi lamented that "support for magical solutions is far easier to obtain than is funding for serious investigative work that is likely to lead to disenchantment" (3).

Truzzi also clarified that *The Zetetic* was committed to a scientific perspective rather than a neutral examination of the paranormal. Truzzi tried his hand at demarcating science from pseudoscience by focusing on acceptable versus unacceptable scientific methodology.

Skeptical Thoughts from the Time

David Marks and Richard Kammann demonstrated that university students, jewelers, and telephone respondents could replicate Uri Geller's purportedly psychic methods for reproducing sealed drawings and fixing broken watches.

Ray Hyman explained that people interpret events based on knowledge and expectation. Accordingly, humans can interpret bogus cold readings as legitimate—particularly when the performer sets the stage correctly and provides positive, self-affirming statements.

Eric Woodrum reviewed the recruitment strategies that fueled the growth of transcendental meditation (TM). Woodrum predicted that "the TM movement will stabilize as a denominational popular religion" (46).

John D. McGervey demonstrated that astrological signs do not predict whether people will become scientists or politicians, in contrast to astrology-based speculation. McGervey concluded, "If logic had any place in astrology, [astrologers] would be faced with a hopeless task" (54).

Elsewhere, a tongue-in-cheek Phillip J. Klass promoted the predictive power of Chinese fortune cookies, suggesting that subatomic flour participles could have a mystical reaction with the ink.

Deep Dive into the Woo Pool

Beef. It's what's for skeptics.

James R. Stewart reviewed the Nebraska-South Dakota cattle mutilation affair that stampeded from August to October 1974 (see "Cattle Mutilations: An Episode of Collective Delusion"). According to Stewart, the 1974 cattle mutilation concern was triggered by nearly simultaneous reports about cattle mutilations, UFO sightings, and a "monster thing" in the area (55). Local authorities were unable to explain the grotesque state of the dead cattle, and residents developed paranormal explanations.

Some suggested that extraterrestrials or satanic cult members were to blame, while others tied the story to an unknown hairy creature. A director at South Dakota State Mental Hospital claimed that cattle mutilations were caused by a deranged individual—a *moo-urderer!* Local authorities became receptive to these outlandish speculations.

The Nebraska-South Dakota cattle mutilation fervor eventually waned after two veterinary diagnostic laboratories attributed cow deaths to natural causes. Meetings between law-enforcement officials, state veterinarians, and residents generally supported the theory that the cattle died of natural causes and were subsequently mutilated through ordinary predation. Despite anxiety waning since then, paranormal interpretations of dead cattle have continued. The

early 1980s featured at least two movies with cattle mutilation themes: *The Return* (1980), starring Cybill Shepherd, tethered cattle mutilations to alien visitation, and *Endangered Species* (1982), starring Robert Urich, roped in a government conspiracy.

More recently, tales from the uber-paranormal Skinwalker Ranch associate cattle mutilations with different outrageous claims. Fox News anchor Tucker Carlson hopped on the cattle mutilation train when *Tucker Carlson Originals* (broadcast August 8, 2022) suggested that cattle mutilations could be linked to predators, nefarious rival-ranchers, UFOs, a government conspiracy, or Satanists.

Post-Warp Summary

A proper postmortem begins with understanding the relationship between cattle mutilations and the paranormal. Dead cattle by themselves are not directly paranormal; there's no disputing that the cattle were dead and disfigured.

Rather, cattle mutilations are a type of *paranormal-inviting occurrence* where individuals encounter an event or phenomenon that challenges conventional explanation and thereby encourages paranormal ponderings.

Stewart picked up on the paranormal-invitation theme and used 1950s Seattle perplexity about windshield pitting as a comparison. Additional examples include speculations about the Tunguska explosion (Winter 1978) and crop circles (September/October 2014).

Recognizing corrupted dead cows as a paranormal-inviting occurrence clarifies why cattle mutilations are yoked to different paranormal claims. Dead cattle that have been defaced by predators, maggots, blowflies, and bloating are only interesting insofar as they demonstrate a macabre circle of life. Deceased cattle become sensational when some mysterious creature or agency has allegedly mutilated them. In the forty-five years since Stewart's article, the Committee for Skeptical Inquiry publications have mentioned cattle mutilations sporadically and in conjunction with paranormal claims such as the chupacabra (January/February 2016) and extraterrestrials (Summer 1997 *Skeptical Briefs*).

So-called cattle mutilations illustrate the value of inter-temporal analysis. The cattle mutilation episode of *Tucker Carlson's Originals* is unoriginal. Carlson just suspiciously revisits a phenomenon that Skeptical Inquirer examined when Elvis Presley was still alive. Sure, Carlson provides some tepid morsels that might look sizzling for the paranormally minded. The Bearded Butchers claim that it is not possible for humans to butcher cattle in the field and leave no trace. Uh … okay.

But Carlson did not include research conducted in 1979 by the Washington County, Arkansas, Sheriff's Department. Sadly, the official report was lost years ago, but Rick O'Kelley, one of the investigators, kindly steered us through it. According to O'Kelley, cattle were dying from an infectious disease called blackleg and owners began reporting cattle deaths as "mutilations." Investigators euthanized a sick calf and observed it continuously from a distance for three days and two nights. A natural process that included internal gas and maggots caused the carcass to resemble a typical cattle mutilation case. No extraterrestrials, satanists, or cryptids necessary.

The passage of time further discredits its paranormal explanations. The alien explanation for cattle mutilations suggests that extraterrestrials have somehow eluded radar and satellite technology for decades. And to what end? Apparently, extraterrestrials don't want to make contact with us; they just really have a hankering for cow rectum, perhaps a delicacy elsewhere in the universe.

A decades-old government conspiracy doesn't seem any better. How on earth could the federal government hide a decades-old program of this magnitude? And we still haven't caught those meddling satanists.

Cattle mutilation anxiety demonstrates the value of skeptical interpretations. Cows sometimes die in places where they degenerate through known natural processes and predation. Natural explanations for cattle mutilations discourage wasteful investment into bovine defense systems designed for extraterrestrials, satanic cult members, and monster-things.

Skepticism. Yee-haw! ■

[SKEPTICAL INQUIREE BENJAMIN RADFORD

Benjamin Radford is a research fellow at the Committee for Skeptical Inquiry and author or coauthor of fourteen books, including *America the Fearful: Media and the Marketing of National Panics*.

Mysteries of the Ica Stones

Q: **What's the story behind the Ica Stones, the rocks in Peru connected with ancient alien theories?**

—Daniel M.

A: Called by archaeology professor Kenny Feder (2010) "one of the most transparent and absurd archaeological hoaxes," the story of the Ica Stones is also fascinating and complex. It began nearly sixty years ago when Dr. Javier Cabrera Darques, a medical doctor, was given an engraved rock as a birthday gift.

In his book *The Message of the Engraved Stones of Ica*, Cabrera (1994) recalled how it began:

> It was the beginning of May 1966. Felix Llosa Romero, my childhood friend, crossed the Plaza de Armas of Ica and arrived at my home, where I regularly saw my patients. [He] had in his right hand a small stone. "I've brought you a present," he said, "I thought it would make a pretty paperweight for your desk." When he handed it to me it felt surprisingly heavy. It was shaped like an oval, and it was engraved on one side with a carving of a fish I did not recognize. The stone struck me as most unusual…

The fish struck Cabrera as unusual because he believed it had died out long before humans would have encountered it.

Intrigued by this anachronistic curio, Cabrera naturally asked where he could find more. He was told that it was only one of many such stones collected by two brothers, Carlos and Pablo Soldi, in the nearby Ocucaje district of Peru. The pair were part-time *huaqueros*—looters and grave robbers who illegally excavate archaeological sites for artifacts to sell to collectors. When he visited the pair to see their stone collection,

> I saw drawings of men. I saw both staple and elaborately executed scenes of hunting and fishing. I saw also that the animals represented had different characteristics from those of the species as we know them: there were snakes with small wings on their spines; birds with horns; insects with pincers as long as their bodies; fish covered with wings.

Believing them to be both ancient and reasonably accurate depictions of real, once-extant animals—instead of, for example, illustrations of fanciful monsters such as dragons, ogres, trolls, fairies, and the like—Cabrera immediately sought out as many as he could find. When that source dried up, Cabrera found someone else: a farmer named Basilio Uschuya.

Uschuya said he gathered the stones from a cave whose location he refused to reveal, but for a fee he'd be happy to return and bring out more. Apparently satisfied with this obviously obfuscating answer, Cabrera struck a deal that would span decades and dramatically change the course of his life. Over 15,000 "ancient" stones would eventually be presented to Cabrera, depicting both the mundane (e.g., flowers) and the mys-

The desk of Dr. Javier Cabrera Darques in his Museo Cabrera in Ica, Peru. Note the stone on the far left seems to depict modern surgery. Photo by the author.

The office of Dr. Javier Cabrera Darques in his Museo Cabrera in Ica, Peru. Photo by the author.

terious (e.g., dinosaurs, telescopes, and airplanes).

Cabrera became obsessed with this astonishing find, concluding that because the stone was too hard to be carved by hand, the obvious explanation was … aliens. Yes, at some point in the distant past extraterrestrials took a break from constructing basic shapes such as pyramids in Egypt and flew over to Peru to carve drawings on small rocks before storing them in a secret cave for safekeeping. The nearby Nazca Lines, of course, added to the mystique and were a possible connection for the determined mystery monger. Cabrera gave up his medical practice to devote his life to uncovering the ancient secrets in the stones he alone seemed to understand.

Visiting the Stones

To share his earth-shaking discovery with the world—even the academics who saw little merit in his claims—Cabrera founded in 1996 what would become the Museo Cabrera in the small town of Ica, which is where Joe Nickell and I saw the stones. We found no shortage of mysteries and miracles to investigate in Peru. We were on our way south to visit the famous Nazca Lines, but there were also mud baths in the coastal town of Chilca, where the clay and dirt—possibly linked to UFO reports nearby—were said to cure nearly any health problem. But we wanted to see the infamous stones, so after a few inquiries we were allowed into the museum just off the main plaza. I interviewed our guide and translated questions and answers for Nickell.

Seeing the stones in person was a treat for both of us; it's one thing to read about them or see photos, but actually being in Cabrera's office surrounded by hundreds of stones gave a sense of the scale. There were many sizes, from pebbles to boulders, most with a black patina. While the stones themselves were rather ordinary and unremarkable, they were nevertheless interesting if viewed as folk art. Seeing the Ica Stones is a bit like examining other famous fakes, including the Cardiff Giant, the Feejee Mermaid, and the James Ossuary box—all of which Nickell and I investigated together. They are obviously fake but nevertheless fascinating for their historical significance.

With Cabrera dead and the hoax already exposed—if not universally acknowledged—our trip was more for research and curiosity than active investigation. We were polite and diplomatic; we were guests in the museum, after all, and there was little benefit in challenging the caretaker with pointed questions.

Storied Stones and Skepticism

The central question was how old the stones were. Because radiocarbon dating only works on—you guessed it—objects that contain carbon, the stones themselves could not be dated, though there were many red flags that the "mysterious" marks upon them were recent, including the patina-free scratches (for more on this see Nickell 2007 and Polidoro 2002).

Cabrera's notoriety grew along with his rock collection and drew many fellow cranks, including Ehrich von Daniken.[1] However, the stones eventually drew some skeptical scrutiny and came to the attention of journalists. Uschuya was arrested for selling archaeological artifacts—a serious crime. After all, if the stones were what they were claimed to be, then they had historical and archaeological value, just like any pre-Incan artifact, including gold objects, mummies, and countless other pieces of ancient culture.

On the other hand, if Uschuya was simply selling ordinary rocks as modern-day fakes, that would not run afoul of Peruvian antiquities laws (though Cabrera might have a good case for fraud). Caught between thousands of rocks and a hard place, Uschuya confessed to faking the stones with drawings inspired by films, television shows, and comic books. Cabrera and his supporters later claimed that his confession was itself false and offered various tepid defenses of the stones. The rebuttals were riddled with errors and straw man arguments. For example, it was said that the fine-grained igneous andesite stone—a seven on the Moh's Hardness Scale—was too hard for humans to carve. This is technically true but misleading because the stones weren't *carved*; they were *etched*. Etching is much easier and can in fact be done by hand; many of the lines show evidence of a mechanical drill.

A second claim for the stones' authenticity also appeared in crop circle circles: that they could not have been hoaxed by a single person because there were so many and of such intricate designs. Once again, the premises were flawed: the designs were in fact crudely done and easy to make. Second—as in the case of crop circles—though the most prominent hoaxers are well known (Doug Bower and Dave Chorley in the case of circles), many people made the designs over the years. No skeptic has claimed that Uschuya alone scratched designs into every single stone. Instead, when Cabrera's financial incentive made the stone production much more lucrative than other ways of making a living in the impoverished country, it's possible friends and family joined in.

Like the Ica Stones themselves, summing the case up as a simple hoax

doesn't do it justice and only scratches the surface. You also had experts speaking beyond their expertise—common in paranormal circles and particularly in claims about anachronisms and "alternative history." Cabrera assumed he knew enough to authenticate the stones, but he was woefully out of his element. The training required for his medical degree doesn't qualify him in geology, paleology, anthropology, or any other field related to the stones. In fact, Cabrera's expertise failed him time and again; recall that this hoax took hold when he thought he recognized a fish depicted on one of the stones as an extinct species. The fish wasn't labeled, of course—in Spanish or any other language—but he was curiously confident enough in his identification of a specific fish from a crude drawing.

Another facet to this case is how a story can be co-opted by those with specific anti-science agendas—in this case cranks, creationists, and UFO researchers. Creationists had a long—and fruitless—record of trying to find evidence for a young earth. Proving that dinosaurs coexisted with modern humans (as the stones depicted) would, they believe, handily refute many evolutionary claims. That's one reason they touted the famous Paluxy tracks in Texas, which they claimed showed contemporaneous human and dinosaur tracks (see Weber 1981). Other examples include the perpetual rediscovery of Noah's Ark (see Radford 2006) and the Cardiff giant hoax from 1869, touted by Methodists as evidence of biblical giants.

Often, stories that would otherwise collapse under the weight of implausibility or fade away soon after debunking are given legs (and long lives) by mystery-mongers and their ever-enabling television producer kin. I view Cabrera as less a hoaxer than a gullible, tragic figure whose reputation was destroyed by a crude hoax. In that regard, I think of the many Bigfoot researchers who have devoted decades of their lives—sacrificing in some cases friends, family, and fortunes—to researching the mystery and explicitly inspired by unshakeable faith in the authenticity of the 1967 Patterson/Gimlin film despite its dubious provenance (see Long 2004 and Radford 2022). Hoaxers and liars are often surprised not only at how easy it is to fool people but also at how their claims gain traction.

In the end, there is not a single Ica Stones mystery but several: Why was Cabrera so gullible? Who was deceived and when? How much of the deception was self-deception? Were the Soldi brothers in on it from the beginning? Was it a long con or were the stones presented to them as ancient? How long did Uschuya think he could keep up the ruse? How did he get the stones to pull off such an audacious caper? We may never have all the answers, but in some ways it was the perfect storm of gullibility. Had a more skeptical decision been made anywhere along the way, the Ica Stones may never have come to light, but they now are a footnote in fraud and fakery. ■

Note

1. In a curious and amusing example of what happens when gullible cranks meet inveterate con men, Cabrera ended up exposing von Daniken's fabrications. As Feder notes, "In his book *Gold of the Gods*, von Daniken clearly states that Cabrera took him to the cave and showed him the spectacular items secreted within, including more of the Ica Stones and a plenitude of gold objects. When Cabrera himself disputed this, von Daniken admitted that he made it all up" (Feder 2010, 143).

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A stone depicting ancient use of telescopes at the Museo Cabrera in Ica, Peru. Photo by the author.

A stone depicting a pterodactyl attacking a human at the Museo Cabrera in Ica, Peru. Photo by the author.

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Homeopathy Research Hits New Low

A recent study of homeopathic treatments for lung cancer showed fantastic results—but they seem to be based on data manipulation and falsification instead of solid research.

NORBERT AUST AND VIKTOR WEISSHÄUPL

"Homeopathy in Cancer Patients: Almost Too Good to Be True." That was the headline of an article in the October 23, 2022, issue of the Austrian weekly news magazine *Profil* reporting on an investigation by the Austrian Agency for Scientific Integrity (OeAWI) (Schönberger 2022). The subject of the investigation was a study on the use of homeopathic adjunct treatment in lung cancer patients published in November 2020 in the prestigious scientific journal *The Oncologist* (Frass et al. 2020). As the conclusion of the investigation summarized, "The Committee concludes that there are numerous breaches of scientific integrity in the study, as reported in the publication. Several of the results can only be explained by data manipulation or falsification."

This brought to a climax an affair initiated by the Information Network Homeopathy from Germany and the Initiative for Scientific Medicine from Austria. The only remaining question is whether or not the study will be retracted from the journal; as this magazine went to press, it has not been.

This incident marks a new low in homeopathy research. Until now, if positive results occurred in clinical studies of homeopathy, they were typically attributed to weaknesses in the study. For example, a flawed study design had produced a high risk of bias, making it likely that the results were not valid. Alternatively, there were errors in data collection, analysis, interpretation, or other inadequacies. However, in the case of the *Oncologist* study, it is impossible to assume random and unintentional errors. The findings of the OeAWI investigation suggested that the authors quite deliberately took actions to create positive results.

In addition, this incident draws attention to a weakness in current medical research publications. Although published in a renowned oncology journal, the errors in this study were not identified by medical experts in oncology as part of the journal's peer review process but instead by a group of skeptics not engaged in medical research who examined the data after publication. Without their scrutiny, finally leading to official disclosure of scientific misconduct, homeopaths could still brag about first-class scientific evidence for the effectiveness of homeopathy over placebo.

Table 1: Changes in Key Study Parameters

	Protocol	Initial Registration	Publication
Date	January 2011	January 2012	October 2020
Number of cancer types	1	3	1
Number of patients	300	600	150
Number of study groups	3	2	3
Follow-up time QoL*	18 weeks	104 weeks**	18 weeks
Number of exclusion criteria	11	1	22

* QoL = Quality of Life

** Calculated from seven years of planned total duration minus five years planned recruitment time.

Research on Homeopathy

From a purely logical basis, research on homeopathy does not make sense—especially in the form of a Phase III study to test its effects in patients—because homeopathic medicines are so diluted that it is unlikely there is any active ingredient remaining.

Usually, studies on homeopathy get published in rather dubious journals focusing on complementary and alternative medicine, which exist in an astonishing number. But on occasion, authors succeed in publishing supposedly positive studies on homeopathy in respectable scientific journals. The professional public may ignore them with a shrug of the shoulders, but for supporters of homeopathy these publishing successes serve as supposedly first-class evidence, which in turn is presented to the public to promote homeopathy. Besides the study under consideration here, other examples include Katharina Gaertner et al. (2022) in *Pediatric Research* on homeopathy and ADHD or Michael Frass et al. (2005) in *Chest* on homeopathy for patients with severe lung problems in the ICU.

We appeal to the various parties involved in publishing scientific papers to be very skeptical about trials on highly implausible therapies. Specifically,

- Scientific journals should publish such studies only after a very critical review that established that they contain solid scientific research.
- Peer reviewers should check positive results on homeopathy and other very implausible therapeutic methods in great detail for possible errors and inconsistencies and provide a clear report to the editors.
- The professional public, when finding articles about positive results on homeopathy, should critically assess such publications and express their concerns about the integrity of the study in letters to the editor.
- Respectable journals should not shy away from admitting errors in the peer-review process and be willing to retract dubious studies.
- Of course, freedom of research and science is valuable and necessary. But to maintain their international reputations, medical universities should take actions to prevent dubious studies under their names and should only approve them after some critical assessment of the project to establish that the assumptions to be tested do not contradict other fields of science, such as chemistry, physics, physiology, and the like.

The Questioned Study

The lead author of the study is Professor Michael Frass. He states his affiliation with Medical University of Vienna, but at the time of publication, he had retired (Frass et al. 2020). The study was conducted as a double-blinded, randomized, and placebo-controlled comparative trial, performed at several sites in Austria. Thus, the gold standard for study design validity was more than met. The procedures deployed for blinding, randomization, etc., without doubt merit a "low risk of bias" rating.

The results of this apparently high-quality study would really be fantastic for homeopathy—if they were valid:

- On average cancer patients in the homeopathy group (n = 51) achieved a 70 percent longer survival time than with

placebo (n = 47).
- Quality of life as well as subjective well-being under homeopathy improved considerably, while the patients on placebo got progressively worse.

There was a third group of patients who did not want to participate in the study and did not receive any additional treatment (n = 52). They fared even worse. This group is not considered here because of the unclear basis for comparison.

If our working group had not taken action to review the paper and inform the Medical University Vienna of our findings, this study would have passed as first-class evidence for the efficacy of homeopathy: a high-quality study, published in a prestigious peer-reviewed journal yielding excellent results that indicate a substantial clinical effect of homeopathic remedies on a lethal pathological process. This had never happened before.

The Protocol

Our analysis was not limited to the published text of the article. Because this was a pre-registered study, we were able to include data from the registry ClinicalTrials.gov (https://clinicaltrials.gov/ct2/show/NCT01509612), which shows the "history of changes" to the study over time (https://clinicaltrials.gov/ct2/history/NCT01509612), as well as the data specified when the study was originally registered (ClinicalTrials 2012). In addition, we included the study protocol that was uploaded to the study registry, including both the original version (Frass 2011) and the updated version (Frass 2014).

The first version of the protocol, where the parameters were set and the procedures described in detail, is dated January 10, 2011 (Frass 2011). This is one year before the first registration with ClinicalTrials.gov in January 2012 and the beginning of patient enrollment in February 2012. Thus, everything appears to be in good order. The odd thing: The protocol more or less meets the details given in the publication—but the data given in the first registration, one year after the date of the protocol, differ significantly (see Table 1).

There is no way to understand what made the authors provide completely different data with their first registration only one year after the study parameters were established, or why the original protocol is a much better match to the publication data. The only plausible explanation is that the protocol was not created in January 2011 but at a much later point in time. At least parts of it were compiled together with the manuscript for publication. This is corroborated by the following observations:

- The protocol was dated January 2011 but uploaded to the registry on September 18, 2019, instead (ClinicalTrials 2020), about two months after data collection was completed. Most probably, these were no longer blinded—meaning the researchers could tell who got the homeopathic medicine and who got placebo—a potential source of bias.
- In the protocol, the software used for data analysis is specified as "IBM SPSS statistics 25.0" (Frass 2011), but according to the SPSS listing on Wikipedia, that version was not released until July 2017! In January 2011, the current version number was 19; the researchers could not have used a software version that had yet to be developed.
- In the text of the protocol, a superscript number 25 appears in the description of the questionnaire SF-36 looking similar to a literature reference (Frass 2011). But that notation makes no sense there because the protocol has no bibliography. However, this superscript number corresponds with reference number 25 in the publication, which refers to a paper describing the SF-36 questionnaire (Frass et al. 2020). References 1 through 24 contain ten papers that had not yet been published at the time the protocol was ostensibly written. The only possible explanation for this superscript number seems to be that it originates from a somewhat failed copy-and-paste transfer from manuscript to protocol.

In May 2021, we published our results and posted the English version on Edzard Ernst's blog (Aust and Weisshäupl 2021). We contacted the authors and asked for their comments on our crucial findings (see below). We received no reply; however, on June 14, 2021, a new protocol version was uploaded to clinicaltrials.gov (ClinicalTrials 2021). This bears the date of February 6, 2014, which would be two years into the study, at which point the first subjects might have just reached the end of their follow-up time (Frass 2014). The limited data available at that time were most certainly still blinded. In a rigorous trial, this would be the last chance to publish a change to the protocol without raising concerns about possible bias caused by knowledge of the early patient results.

In this second version, all data including the number of exclusion criteria and the follow-up time had been adjusted to match the publication. On the other hand, the previous version of the protocol is not mentioned at all, which would be essential for transparency on how the trial progressed.

This second version did not yet exist prior to September 18, 2019, otherwise this version would have been uploaded to the registry. This removes all possible doubts: predating the protocols cannot have happened as a casual error. Only one interpretation is reasonable: the reader is led to believe the procedures were established at an early stage of the trial and then followed consequently until the very end.

Post Hoc Adjustment of Exclusion Criteria

If the version of protocol that was actually used was created about the same time as the manuscript of the publication, then all the procedures reported there must be regarded as *post hoc*, i.e., as a subsequent modification of rules after the outcome data were known to the authors.

Under these circumstances, it would be possible to adjust the study parameters in such a way that the results are shifted in a certain direction. This procedure is descriptively called the Texas Sharpshooter Fallacy: a gunslinger shoots at a barn door and paints a bullseye target around the bullet hole after the fact.

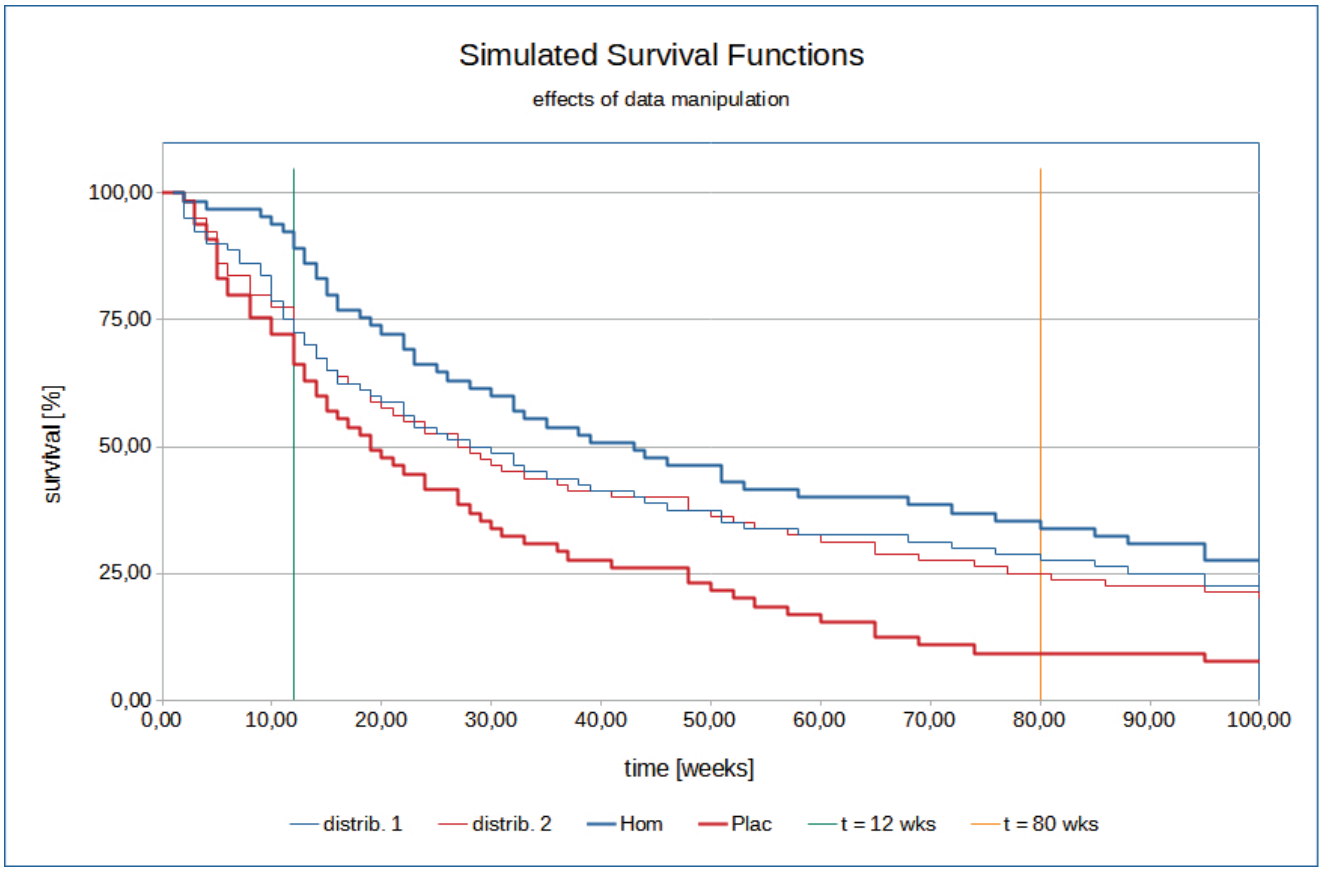

Figure 1. Numerical model of data manipulation (see text for explanation).

In this case, two major parameters were modified *post hoc*, namely a reduced follow-up time (see below) and an increase in the number of exclusion criteria—the justifications given for eliminating a participant's data from the study. Both are mentioned for the first time in the first version of the protocol. As of August 15, 2018, when the registry was updated the last time before the protocol was uploaded, the parameters still indicated that the patients would be followed up for 104 weeks, and only one single exclusion criterion was declared.

At the onset of the trial, only pregnant women were to be excluded from participation (ClinicalTrials 2012). In the publication, no fewer than twenty-two different exclusion criteria were defined (Frass et al. 2020). Furthermore, the criteria seem to be arbitrary with no consistent underlying basis by which they could have been established. Kidney disease, liver disease, blood disease, coronary heart disease, and many other conditions that become more prevalent with age led to exclusion without any clear rationale provided. In contrast, other maladies common in this age group, such as diabetes, hypertension, and gastric or intestinal diseases, did *not* lead to exclusion.

In addition to the lack of rationale, the authors did not disclose how many patients were excluded this way (Frass et al. 2020): Neither the CONSORT diagram—which shows the flow of patients and their assignment to experimental groups—nor the text of the publication provides this information. Eight patients were excluded after randomization due to "late detection of mutations," but no other exclusions are mentioned. It is implausible that this constellation of exclusion criteria was introduced while the study was being conducted yet no patients were affected.

We have demonstrated what can be achieved with the *post hoc* exclusion of test subjects in a numeric model (see Figure 1; Aust and Weisshäupl 2021).

Two sets of random distributions were modified to represent two equivalent survival functions (thin lines in Figure 1). These curves show how many patients were still alive at a given time. The median lifetime for both curves is twenty-eight weeks, by which time exactly 50 percent of the patients in each group have died.

Each set consists of eighty elements. If a random fifteen of the first twenty deaths are dropped from the blue curve representing homeopathy, the thick blue line emerges. This sample now has sixty-five elements instead of eighty, but this still is 100 percent of the elements present. Thus, the origin is maintained, but the curve shifts upward due to the now missing early deaths. The thick red curve, supposedly representing placebo, emerges when a random fifteen of the twenty patients that survived the longest are dropped. Again, this curve maintains its origin at 100 percent, but the curve deflects downward due to the lack of long-term survivors.

Comparing both thick curves, certain features may be observed:

- The difference in survival is set during the first twelve

weeks only. With the blue curve, eight patients die during this time marked by the vertical green line in Figure 1. With the red curve, twenty-three patients die. After that, for the next sixty-eight weeks, about the same number of patients die in both groups: thirty-six and thirty-seven for blue and red, respectively. After that, the curves start to converge again, because at some future point in time all patients will eventually have died.

- The median survival time of the *red curve decreases* by eight to nineteen weeks.
- The median survival time of the *blue curve increases* by twelve to thirty-nine weeks.

Exactly these characteristics can be found in the survival functions presented in Figure 1 of the Frass et al. (2020) publication in *Oncology*:

- The advantage of the homeopathy group arises in the first nine weeks only. Two of fifty-one (4 percent) homeopathy patients die, but eleven of forty-seven (23 percent) patients of the placebo group die. From then onward to the end of the follow-up, virtually the same number of patients die in both groups: twenty-six under homeopathy (51 percent) and twenty-five under placebo (53 percent).
- The median survival time in the placebo group is only 257 days. This is significantly shorter than the 303 days expected under conventional care alone, as the authors cite from prior investigations.
- The median survival time in the homeopathy group is 435 days, significantly higher than the expected value of 303 days.

Conclusion: The improved survival under homeopathy may have been produced by data manipulation—specifically, by dropping unfavorable data from two practically equivalent samples for no discernible, legitimate reason. This would be patients dying early under homeopathy and long survivors in the placebo group. For example, if a patient in the homeopathy group with an autoimmune disease (such as rheumatism) died early, but there were no such patient in the placebo group, or if such a patient survived for a long time, then the exclusion criterion "autoimmune disease" may be introduced to exclude an unfavorable data point. Enough selective inclusions and omissions could produce the results presented in the published study.

If, on the other hand, homeopathy were an effective treatment, then the effect should be obvious throughout the whole follow-up; you would expect the curves to diverge more or less continuously throughout the whole trial until they inevitably start to converge again. However, here this breaking point seems to be outside the follow-up observation.

This pattern of results suggests that the *post hoc* introduction of a large number of exclusion criteria was part of a deliberate effort to manipulate the data in the direction of a positive outcome. Predating the protocol to a time before the study was started and not mentioning this change in the publication further supports this hypothesis. And finally, the results show telltale characteristics that can originate from precisely such manipulations. It is very hard to believe that this kind of manipulation did not occur.

Post Hoc Reduction of Observation Time

The second major change to the original research plan concerns the follow-up time for measurements of quality of life (QoL) and subjective well-being, both of which were primary outcomes of the study—that is, the main measured effects. With the first version of the protocol, this follow-up time was reduced from 104 to eighteen weeks. QoL and well-being are very important for patients in the late stages of cancer, so it is reasonable to define these measures as primary outcomes with survival as a secondary outcome. But it is hard to understand why QoL and well-being are considered in the early phase of treatment only—and not until the follow-up for survival was complete.

And at the beginning of the trial, the authors seemed to share the same opinion. The overall duration of the study was planned to be seven years (ClinicalTrials 2012). With a planned recruiting period of five years, this yields a minimal follow-up of two years. This was conducted for survival and was indicated in the registry to be applied to QoL and well-being as well. Up to August 2018, this was the plan (ClinicalTrials 2018):

"Primary Outcome Measures
1. Life Quality
[Time Frame: 7 Years]
Life Quality is evaluated using the results of the EORTC-QLQ-C30 questionnaire."

This unambiguously indicates a data collection period of two years or more. Even the publication gives information in this direction (Frass et al. 2020): "Patients were followed up every nine weeks until death. … Patients were asked to complete again the questionnaires they answered on study entry."

However, for the first time with the uploaded protocol, the observation period was reduced to *eighteen weeks* (Frass 2011). This means that out of 104 weeks, only the first eighteen are presented, resulting in over 80 percent of the data being ignored. Why would you observe and report survival as the secondary outcome for two years and the primary outcome for eighteen weeks only? The authors did not provide any research rationale for this change in the plan.

Such selective outcome reporting is a severe flaw in any study. If the data to be reported are selected *after* unblinding—and the selection is in stark contrast to the original stated methods, as occurred here—the pattern of events is highly suggestive of data manipulation. The results reflect only a very early stage of the trial—likely because this cherry-picked subset of data represented the most favorable outcomes for homeopathy observed within the whole trial. Valuable information—how the patients performed in the long term—has been withheld, and important criteria for evaluating the intervention were kept secret. An analogy would be researchers agreeing on a protocol to test 100 falsifiable psychic predictions and, when completed, finding the overall success rate no better than chance but then only reporting an accurate streak

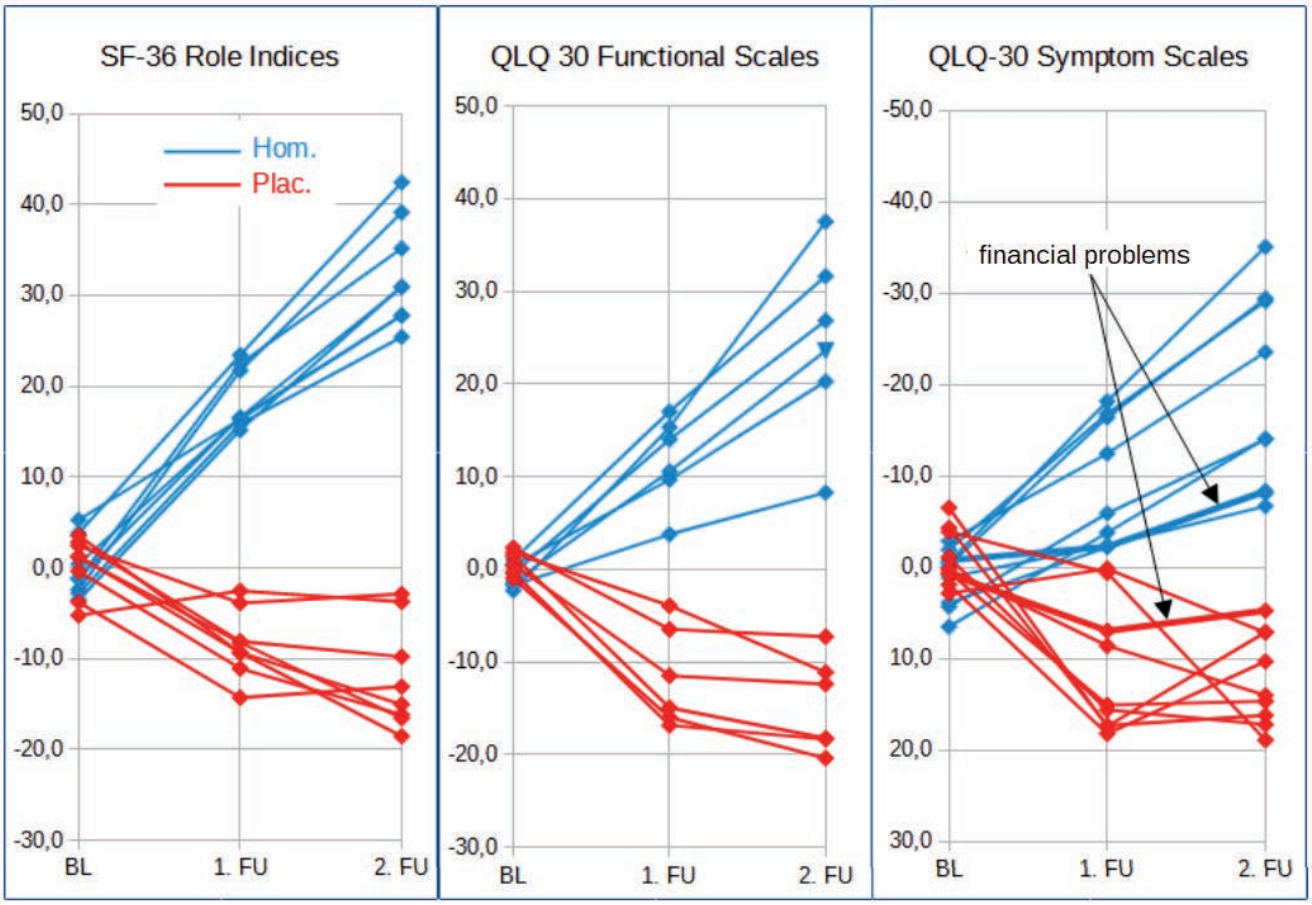

Figure 2. Quality of life and subjective well-being results relative to baseline (BL) at follow-up 1 (1. FU) and follow-up 2 (2. FU). Positive changes are indicted by upward movement and negative by downward movement.

of twenty instead of the whole hundred. Study registries such as ClinicalTrials.gov are set up to help detect (and deter) precisely this sort of bias.

The observation probably ended when data looked particularly good for homeopathy, further enhanced by the selective exclusion discussed above. And the data did look great to an incredibly high degree (Figure 2).

Figure 2 shows three diagrams we compiled from the numerical data given in the appendix of the publication showing the results of two questionnaires for quality of life (SF-36) and subjective well-being in two scales (QLQ-30; Frass et al. 2020). All three diagrams deal with symptoms such as fatigue, nausea, vomiting, pain, etc., or how well the patient is coping in daily life. The data are arranged so that favorable values are oriented upward and unfavorable ones downward. For ease of comparison, the curves were shifted so that for each item, the mean value of all participants at the beginning (BL = Baseline) is set to zero.

Apparently, homeopathy patients fared continuously better in all respects—surprisingly, even with respect to financial problems—while placebo patients were able to maintain their level in rare cases only; most of the time they fared poorly, and their indices and scales worsened over time.

Why did the authors omit the further development during the next nine follow-up appointments that a patient experienced during the study if he survived to its end? According to all life experience, one may safely assume that the endpoint, arbitrarily set with knowledge of the outcome data, was chosen in such a way that the results for homeopathy patients represent the most advantageous time point. This cannot be conclusively proven, but selective outcome reporting is considered a serious study flaw, because this is exactly what cannot be ruled out. What if the homeopathy patients had not fared better in the further course but considerably worse?

Further Inadequacies

When we reviewed and analyzed the publication, we found many more flaws and inadequacies that somehow escaped the peer reviewers' attention. Here we present a few examples:

- Diagrams given in Figures 2 and 3 of Frass et. al. 2020 do not match [2]. Both represent the flow of patients. In Figure 2, some eligible patients refused to participate in the study but gave their consent to be observed for survival. Some of these received homeopathy. This group is not present in the CONSORT-flowchart in Figure 3.
- One criterion to participate was a histologically confirmed cancer stage no more than eight weeks prior to inclusion. However, time point zero is not defined for these patients: Is it the date of diagnosis or instead the first homeopathic consultation? This discrepancy could be a gap of days to months, and with a follow-up time of only eighteen weeks in the primary outcome, this uncer-

tainty might be important.

- The number of participants was determined to yield a sufficient statistical power for the secondary outcome—but not the primary one, which is quite unusual. Still the authors failed to recruit the appropriate number of patients and the study is vastly underpowered (ninety-eight patients in two groups instead of 300).
- The devastating result of the first group (which received conventional treatment only and fared even worse than the placebo group, with survival times well below what conventional treatment usually yields) is never discussed.

OeAWI Investigation

Unfortunately, the final detailed report of the Austrian Agency for Scientific Integrity is not available to the public. The only public source is the article in the Austrian weekly news magazine *Profil* from October 23, 2022, with numerous quotes of the findings in German (Schönberger 2022) but including several quotations from the original English report.

The OeAWI commission deployed other methods than we did and had access to original data and the protocols presented to the ethics committee. Nevertheless, overall, they came to very similar conclusions as we did:

- OeAWI criticizes the huge number of amendments of trial parameters while the study was underway that were not mentioned in the publication. They consider this lack of transparency "unacceptable" and suggestive of data manipulation.
- The definition of the exclusion criteria in the protocol leads OeAWI to the conclusion that many patients were excluded *post hoc*, which suggests data manipulation.
- The analysis of survival yielded that homeopathy seemed effective at certain time periods only with long intervals of ineffectiveness in between. This is considered implausible but consistent with the assumption of data manipulation.
- In the original data available to OeAWI, the commission found several patients who had been excluded after the study was completed but whose removal was not reported in the publication. This is also suggestive of data manipulation.
- Among completed questionnaires, several have the top scores in all sixty-six items of SF-36 and QLQ-C30 questionnaires. In addition, the homeopathy group showed an average quality of life score that exceeded that of the general Austrian population (and was in fact even better than the upper quartile of the population). This is very implausible for patients in the final stages of lung cancer.
- In a statistical study, patients' quality of life data were compared with their survival times. There was a clear correlation in the placebo group: patients who felt worse also had a lower life expectancy. There was no such correlation in the homeopathy group: some of the patients

who reported feeling excellent died a few months later. This, also, is possible but highly unlikely.

The conclusion of the OeAWI reads, "The Committee concludes that there are numerous breaches in scientific integrity in the study, as reported in the publication. Several of the results can only be explained by data manipulation or falsification. The publication is not a fair representation of the study."

The OeAWI informed us of their findings in a personal communication and indicated that they had relayed them to the Medical University of Vienna, Austria. The OeAWI also informed the editor-in-chief of *The Oncologist* of their findings and demanded a retraction of the publication. *The Oncologist* has so far complied to the extent that it has issued a (much milder) "Expression of Concern" (2022) tagged to the publication. The editors indicate that there are allegations of data manipulation and falsification associated with the publication, originating from a credible source. The results should be regarded as invalid until their own investigation is completed.

Authors' Reaction

In the *Profil* article, the lead author, Professor Michael Frass, had the opportunity to comment on the allegations (Schönberger 2022). He firmly rejected any accusations of data manipulation or falsification. Indeed, *Profil* reports that he still is absolutely convinced that he has presented a clean and rigorous study. His summarizing statement: "The accusations are all known to us and absolutely incomprehensible. We can answer all of them. Our work was carried out in compliance with all scientific standards. The accusation of violations of scientific integrity has no basis whatsoever. It is obvious to us that not all documents were included in the evaluation. For this reason, we have asked to get access to the files to understand the basis for the concluding statement" (original in German, translation by the authors). Meanwhile, homeopathy organizations have announced that legal action to force the OeAWI to retract its conclusions will be taken if necessary.

One wonders what additional documentation Frass could produce to explain the predating of the protocols or the disappearance of patients after randomization. Many points of our and OeAWI's critique are, after all, fairly obvious from the data in the publication and the website www.clinicaltrials.gov; anybody with access to the internet can check the findings. From our point of view, Frass has obviously not quite understood the situation: The problem is not that we or the OeAWI have excluded documents but rather that we have included all available documents in our analysis, especially previous registration data. ■

Note

A version of this article previously appeared in the German magazine *Skeptiker*.

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Rise of Ayurveda: A Dangerous Trend to Decolonize the Scientific Method

SAMIT GHOSAL

Progress made in India in the past decade in digitization, banking reforms, and economic structuring has been phenomenal. However, there seems to be an inversely proportional relationship between economic/technological advancement and health/education in the present-day political India. It seems that the concept of going back to one's roots has been exclusively reserved for health and education.

We live in an era of evidence-based medicine, whereby the best available research is combined with the physician's knowledge and patient's preferences to deliver systematic health care (Akobeng 2005). The aim of evaluating an intervention is not only testing its effectiveness but—most importantly—ruling out adverse effects in concert with the first principle of medical management: "Do no harm." Such a stringent monitoring system leads to only 10 percent of investigated drugs getting marketing approval.

Ayurvedic medicine is a medical science based on writings from ancient Indian texts. There are a wide variety of plants and root-based formulations used in preparing the medicines. As a result, these agents can lead to heavy metal poisoning, especially from lead and mercury, presenting with lethargy, headache, and liver and kidney failure (Minnesota Department of Health 2022). According to an ayurvedic physician, the process of purification of the herbs with ashes, by repeating the process nearly a hundred times, is needed to get rid of the heavy metals (TNN 2017). The overall expansion of the ayurvedic industry by 17 percent between 2014 and 2020 with an annual increase of 5.7 percent calls for more stringent application of evidence-based processes to screen for safety of these products (Ayush 2021). A recent systematic review of 219 articles evaluating ninety-eight ayurvedic products used in the management of diabetes revealed poor quality of data, hence the need to strengthen the evidence base (Chattopadhyay et al. 2022). However, instead of implementing these scientific methods of evaluation in the field of ayurveda, we find that these scientific methods of evaluation are being increasingly challenged today.

We are faced with a movement that champions decoloniality over postmodernity (Deepak 2021). *Decoloniality* relates to delinking the source of knowledge from the ones laid down

by colonizers. The work of prominent sociologists Walter D. Mignolo and Aníbal Quijano linking rationality and modernity with "coloniality"—the indoctrination of the indigenous mind with the principles of their colonial masters—provides the inspiration for this decolonization movement (Mignolo 2007; Quijano and Ennis 2000). From an Indian perspective, the aim seems to rid ourselves of the principles of modernity and rationality emerging out of the European Renaissance.

Several terminologies were introduced to indicate the direction that needs to be followed to achieve this decolonization. The recovery of geographical and political space from the colonizers do not immediately lead to a state of complete freedom. Rather it is a state of "post coloniality," whereby the colonial mindset is still prevalent. Hence, the final step to complete freedom is freeing the mindset from the Western construct, defined as *decoloniality*. Although we have freed ourselves from our Middle Eastern and European colonizers, we have not been able to get rid of the mentality ingrained in the Indian system of administration and education. While there are merits to some of the issues raised by the proponents of decoloniality, there has always been a fear of missing out on the actual benefits and falling into the trap of hyper nationalism. The modernization of the education system, infrastructure, and medical and legal framework were some of the positive developments encountered in the colonial periods. How does decolonization reconcile with these benefits?

This conflict is particularly visible in the field of medicine in India. Do we integrate our indigenous values into the prevalent system, which is global in nature, or do we dismantle all that is considered *modern*, *rational*, and *progressive* by the global definition and introduce a new system based on the cultural traditions dating back thousands of years? The latter strategy has the propensity to lead to nationalism as evidenced by the statement of Acharya Shri Balkrishna (a prominent figure spearheading the Ayurvedic movement in India): "Amongst all the cultures of the world, Indian culture is not only the oldest of all, but it is also the best and incomparable" (Balkrishnaji 2009). This mixture of culture, nationalism, and medicine can be seen in the introduction of ayurvedic clinics and hospitals independently, as well as integrated into the existing hospital system by the current government.[1]

Modernization of Science in India: Lack of Acknowledgment?

Science can be understood as a system to acquire knowledge. In medicine, the scientific method typically involves inductive and deductive phases. The inductive reasoning leads to generalization from the specific. In medical science, it involves accumulating data and exposing it to statistical analysis, leading to an inference that then can be implemented on a larger population. The deductive process starts off with generation of a hypothesis that forms the basis on which the design of the experiment is constructed. Then data is collected and analyzed. The final product is a specific outcome intended for a specific population with a specific set of baseline characteristics.

In India, traditionalists are challenging the scientific method as a Western construct. This objection stems from the fact that Eastern methods of acquiring knowledge are not dependent on observational phenomena but rather on the methods involving the mind as indicated in ancient Vedic literature. Attacks on existing scientific methods frequently leads to infamous nationalistic statements akin to the one made by a minister of Ayush (the government agency responsible for the propagation of traditional health methods), Shripad Yesso Naik, depicting all physicians prescribing non-ayurvedic medications as anti-nationals (TNN 2017).

We learn from history that the advent of skeptical inquiry and deductive reasoning was the forerunner of the development of scientific methods. And in this aspect, there were more similarities than differences between Greek methodologies and those developed in ancient India. For example, the classical Greek humors (blood, phlegm, yellow bile, and black bile) that formed the basis of the Hippocratic principles in the fifth century BCE are similar to the "Tridosha theory"—the premise that illness is caused by defects related to three substances: vata, pitta, and kapha (wind, bile, and phlegm)—one of the basic principles of ayurveda (1500–500 BCE) (Bynum 2013; Jaiswal and Williams 2016).

In contrast with the Western Hippocratic tradition, the Indian medical tradition is identified with the Charak Samhita (100 BCE to 200 CE). It is customary for all medical graduates joining medical school in India to take the Hippocratic oath, but in recent years this oath has been challenged by some of the traditionalists who have advocated for the "Charak sapath" instead of the Hippocratic oath (Chakraborty 2022). The documented history of science, as published in the West, has rarely acknowledged the contributions from India, giving

some support for the traditionalist's point of view.

Evolution of the Scientific Methods

Historically, the modern methods of acquiring knowledge have gone from a phase of inductive reasoning to a phase of deductive reasoning, culminating in modern methods that include a mixture of both approaches. The process of deduction—arguing from general principles to a specific conclusion—was formally introduced by Aristotle through his well-known syllogism: "All men are mortal. Socrates is a man. Therefore, Socrates is mortal." It was around the first or second century CE that the Nyāya Sūtras were composed by Akṣapāda Gautama in ancient India, which dealt with the principles of logic and the theory of knowledge that was dependent upon the method of Pramāṇa, or proof (Chatterjee 2015). This method was very similar to the deductive process introduced by Aristotle.

The deductive form of evaluation dominated the scientific landscape until it was superseded by the inductive methodology introduced by Francis Bacon in the sixteenth century (Horton 1973). The process of induction moves from specific observations, from which general principles are drawn. During this entire period, in which inductive reasoning led to logical positivism, India was under prolonged colonial rule and devoid of significant indigenous achievements. The Western influence on all aspects of public life, including science, was identified as "materialism," and "Indianness" was equated to "spiritualism." However, the concept of materialism can be traced back to the sixth century BCE in India in the form of the principles of Lokāyata or Cārvāka (Gokhale 2015).

The evolution of scientific methods shows that there were more similarities among the different schools of thought up to the twelfth century CE. The brutal suppression of the Indian indigenous community from the twelfth century CE to independence in 1947 resulted in people becoming suspicious of every aspect of the colonizers' contributions, even when some of the policies contributed positively to their lives.

Modern Scientific Methods Assessing Medical Science

Like any other scientific discipline, the process of scientific assessment in medicine starts with a hypothesis (disease), which is then tested through a deductive process culminating with the collection of appropriate data (risk factors). After the identification of the risk factors associated with the disease, a treatment must be identified to address the risk factors, alter the disease, or do both. The gold standard scientific method in assessing the utility of a treatment is a randomized controlled trial (RCT). This is a way of designing an experiment whereby the participants for the trial are chosen at random and divided into an intervention arm and a placebo arm. The medicines prescribed to participants in both arms are unknown both to the patients as well as the physicians (double-blind method). This randomized, double-blinded method minimizes the risk of bias associated with conducting the trial and hence makes it superior to an observational trial, where neither the process is randomized nor the participants blinded to the intervention used. Another important aspect of assessing a therapeutic agent is documenting its safety. To summarize, throughout the globe, physicians utilize processes of deduction and induction to follow a standardized scientific method for assessing risk factors for a disease and the agents used to modify those risk factors or the disease.

The basic principles of evaluation of intervention in ayurveda is not grossly different from the above construct. The three tools utilized for research are Pratyaksha (direct observation), Anumana (inference), and Aptopadesha (literature). However, there are significant differences as far as understanding the body and its functions are concerned. For example, the ayurvedic biology depends on the knowledge of channels within the body (Srotovijnana), which act as a transport system for bodily functions. The main aim therefore is to purify the body by rectifying these flow channels (Samshodhana). However, the means of achieving the same is based on the writings of the ancient texts without any systematic process of evaluation. As was correctly pointed out by a

review publication, it is time to replace faith and suppositions with scientific reasoning (Chauhan et al. 2015).

In view of the criticism leveled against these modern methods, indigenous drugs and their associated medical management strategies have been given free rein. Indigenous medical products (ayurvedic agents)—much like health supplements in the United States—have been exempted from scientific scrutiny and are freely available on the market. To make matters worse, these drugs have been dubbed "natural" and free of side effects, in contrast to modern medicines, which are associated with chemicals having the potential to cause harm (Bhardwaj 2022). It is extremely interesting to note that today's government has launched a ministry of Ayush to promote ayurveda, yoga, naturopathy, Unani, Siddha, and homoeopathy. Guidelines have been published online by this ministry about how COVID-19 management is to be accomplished through alternative medicine (Ayush n.d.). On one hand, a plethora of observational and RCT data has been accumulated to identify preventive as well as therapeutic methods of managing the morbidities and mortality associated with COVID-19, while on the other hand these alternative medicines have been allowed on the market without any scientific scrutiny.

The dangers of politicizing medicine are profound. A recent advertisement at the Delhi International Airport created a flutter in the medical community. A *baba Ramdev* (ayurvedic and yogic healer) claimed to have a cure for most chronic diseases, including type 1 diabetes. The claims made were in direct violation of the Drugs and Cosmetics Act of 1940 and the Drugs and Magic Remedies Act of 1954 (Mukunth 2022). However, with the patronage of the present-day government as well as the support of the traditionalists, the battle has shifted from the gross violation of medical ethics and science to an issue between traditional medicines and "allopathy" (modern medicine). In the process, the scrutiny of scientific methods has been targeted, thereby shielding all forms of indigenous therapy from skeptical inquiry. Denying the application of modern strategies to evaluate medications is keeping indigenous medicines from the purview of the central drug controlling authority (DCGI) (Bhatt 2016).

If the tension between scientific methods and traditionalists were merely about the gross lack of acknowledgment of earlier Indian medical history, it would be easy to address this problem. The proponents of decoloniality might have a valid point with respect to this aspect of the controversy. However, if the issue continues to involve challenging or scuttling the scientific method to ensure a smooth backdoor entry of untested traditional medicine to the market, we have a grave and much larger problem at hand. ■

Note

1. For a list of NABH accredited Ayush hospitals, see https://www.nhp.gov.in/nabh-accredited-ayush-hospitals_mtl.

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Remembering Kendrick Frazier, Part Two

Some memorials and funerals are so well attended that they spill over into adjacent rooms. Extra chairs are brought out, and an audio or video feed extends the gathering beyond the usual limits.

Something similar happened to us as we began to assemble the remembrances of Kendrick Frazier, the editor of Skeptical Inquirer for the past forty-five years, who died this past November. Despite allotting over twice the usual space for a feature article in the March/April 2023 issue, it soon became clear that this would not be nearly enough. Ken had touched and inspired a great number of people over his long career, and with his loss many of them wanted to share memories and express appreciation for his role in their lives. As a result, we committed to a second memorial section in the current edition.

This time we begin with a beautiful tribute by psychologist James Alcock, because knew Ken for over four decades and because he and Ken were together at the inception of the organization now known as the Committee for Skeptical Inquiry. This introduction is followed by many other wonderful memorials to Ken from all over the world.

—*Stuart Vyse*

James Alcock

I first met Ken at the 1976 Buffalo conference that gave birth to the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). Little did he know at that time that only a year later he would become the editor of Skeptical Inquirer (*The Zetetic* at the time). Nor could either of us have foreseen that we would later serve for decades together as members of CSICOP's Executive Council.

Ken soon established himself as one of four key figures in the development of both CSICOP and the modern skeptical movement. While Paul Kurtz (formidable builder and organizer), James Randi (exposer of charlatans *par excellence*), and Ray Hyman (expert research psychologist/statistician) all played their crucial roles, it was Ken who in my opinion became the actual helmsman of the movement. His steady hand, his wisdom, his tolerance, and his respect for others shone through in every issue of the Skeptical Inquirer, and it is that publication more than anything that has united skeptics around the world.

As a member of the Executive Council, I had the opportunity to spend a great deal of time with Ken over those years since we met in 1976. He was a lovely human being, one of the nicest, kindest, and brightest people I have ever known. And while Ken was often economical with his words at our Council meetings, we all listened carefully whenever he spoke, for we knew that what he had to say would be well-reasoned and insightful.

Poet John Donne advised that none of us are islands onto ourselves, that the deaths of others diminish each of us as well. Donne's words echo strongly when I think of Ken. Although the pain is obviously greatest for his family and close friends, the bell also tolls for all who knew him, for we have lost a remarkable human being and in so doing have lost part of ourselves.

James E. Alcock, PhD, is professor of psychology at York University, Toronto, Canada. He is a Committee for Skeptical Inquiry fellow and a member of its Executive Council.

Ken in his home office with Darwin the dog and Hercules the cat. Photo credit: Susan Gerbic

Sunset taken by Ken from his and Ruth's front deck, 2014

Massimo Pigliucci

Ken Frazier has passed away. His death affected me more than I would have anticipated. We were not close friends, largely because we have lived our lives thousands of kilometers apart and had only a few opportunities to spend time together at conferences. But I have known of Ken for most of my adult life. It has been an occasional but long relationship.

Ken was a steady light for the skeptical movement, as well as one of the most decent human beings I've ever met, and he will be sorely missed.

Shortly after having suddenly been diagnosed with acute myeloid leukemia on October 10, Ken wrote a letter to the readers of SI. It's a precious example of how a wise and good person tackles such dire circumstances.

At the very end of the letter, Ken wrote: "We cannot know how and when one's life will end, although my situation has now taken on greater clarity. … Thank you all for being such great contributors, readers, and supporters. It has been a pleasure."

In his reflections, Ken maintained that he had lived a fortunate life and that his heart was full of gratitude. He was grateful for his wife, Ruth; his son, Chris; his daughter, Michele; and his seven grandchildren. He was grateful to have had two dream jobs in his life, first as editor of *Science News*, then of Skeptical Inquirer. And he was grateful to have just finished his latest book, *Shadows of Science*, to be published by Prometheus Books later this year. "What more could one ask?," he rightly concluded.

And yet Ken had also suffered setbacks like any other human being. I'm sure the greatest was the death of his daughter, Michele, in 2012. Losing one's child, I am guessing, is a devastating blow from which it is hard to recover. And yet Ken still thought of his life as very fortunate. And he was right. Through a combination of luck and good judgment on his part, he managed to be successful at the only two things that really matter: his relationships with other people and his efforts to be of use to humankind.

I know he doesn't exist any longer, as I don't believe in any sort of survival after death. And neither did Ken. So, these words are really for my own benefit, to come to terms with the passing of someone I considered a friend and an inspiration. Someone I hope will continue to be an inspiration to many others, not just as a skeptic but as a human being. Thank you, Ken, for being who you were. It has been a pleasure indeed.

Massimo Pigliucci is the K.D. Irani Professor of Philosophy at the City College of New York. His books include *Nonsense on Stilts: How to Tell Science from Bunk*.

Paul Fidalgo

Editor's note: This first appeared as an editorial in Free Inquiry.

Earlier today, we learned that Kendrick Frazier, longtime editor of our sibling publication Skeptical Inquirer, had died at age eighty.

Ken ran Skeptical Inquirer for more than forty-five years, longer than I've been alive. I've now been running *Free Inquiry* magazine for just a few months. When I got the job, I wrote to Ken and warned him I'd be bothering him a lot, asking for advice and basic guidance on how to be a magazine editor; he was more than willing. It turned out that I hardly got the chance to pester him, save for some questions on a couple small points. Before the second issue of *Free Inquiry* under my purview had even gone to print, Ken was gone.

For some folks who have been in one job for as long as Ken was editor of Skeptical Inquirer, one might expect that a certain malaise could set in. The publication could be run on inertia; the wheels continuing to spin because of the staff and writers and ongoing interest from readers. Someone who has been the captain of the ship for so long could easily just sit back and, once in a while, point in some general direction and trust that everything will get taken care of.

Heck, I would entirely understand if, say around year thirty, he had just gotten bored.

Well, he didn't.

There's a lot to admire about Kendrick Frazier. Legions of luminaries, scholars, and activists have built entire careers, movements, and lives upon the foundations that Ken built at Skeptical Inquirer, a foundation he kept building upon, augmenting, and adapting across the decades. They, and his friends and colleagues at Skeptical Inquirer and the Center for Inquiry, will be attesting to his qualities and honoring his legacy over the coming weeks and months. His impact on the public acceptance of science and critical thinking is incalculable.

Ken's biggest influence on me, though, was his passion, raw enthusiasm, and sincere delight in his work. Not only was Ken not bored or jaded, but he was ebullient. As he assembled each new issue of Skeptical Inquirer, he would be bursting with pride about the wealth of knowledge and insight he had the privilege of sharing with readers. He was so grateful that his job allowed him to keep learning fascinating new things every day, all the way into his ninth decade on Earth. "I've never had a dull moment in all these years and decades," he once told us. "It's amazing!" To talk to Ken about his job was to talk to a man who could hardly believe his good fortune.

At CSICon 2022, the Committee for Skeptical Inquiry's big conference this past October in Las Vegas, the most engaging speakers were always those who showed the most passion for their work, the ones who were clearly driven to make a difference and share what they had been learning with the rest of us. So many of these brilliant scholars and activists were just so … excited!

Ken wasn't able to attend this latest CSICon. He had just taken ill and expressed his regrets. He was badly missed, and it wasn't the same without him. I know he would have loved it, and maybe it would have been his favorite CSICon yet. Had he been able to be there, I hope he would have seen that so much of the joy, passion, and determination on display was a direct result of his own.

I hope we can keep carrying that with us. We don't have Ken anymore to cheer us on, but we will always be able to follow his example. There's so much work to do, so many new things to learn, and so many people to share ideas with.

What's not to be excited about?

Paul Fidalgo is the editor of *Free Inquiry*.

Ken and Ruth at The Amazing Meeting 2014. Photo credit: Susan Gerbic

Natalia Pasternak

In 2018, with the help of a great team of people, I started *Instituto Questão de Ciênci* (IQC), Brazil's first skeptic organization, and it became clear that we needed a magazine. Our communications director, Carlos Orsi, showed me Skeptical Inquirer magazine, and we adopted it as a model. Our magazine became crucial during the pandemic. It was—still is—the first of its kind in Portuguese, and at the height of the pandemic, we had over 200,000 readers a day and were able to set the tone for the press. Soon I was offered a column in Brazil's largest newspaper and began to write opinion pieces in all the most important newspapers in the country. I now have two radio programs and am in negotiations to launch a national television program. I spoke at the Senate about science and held [then-president Jair] Bolsonaro responsible for the excess COVID-19 deaths in Brazil, calling for his impeachment at the Federal Senate.

Part of the credit for everything I am, everything I know, comes from generous people like Ken, a man who dedicated his entire life to the communication of science, a field so taken for granted inside academia. Ken's life's work echoed in Brazil, took root, and helped win an election. I can never thank him enough.

Natalia Pasternak is a Brazilian microbiologist, author, and science communicator. She is the president of *Instituto Questão de Ciência* and a CSI fellow.

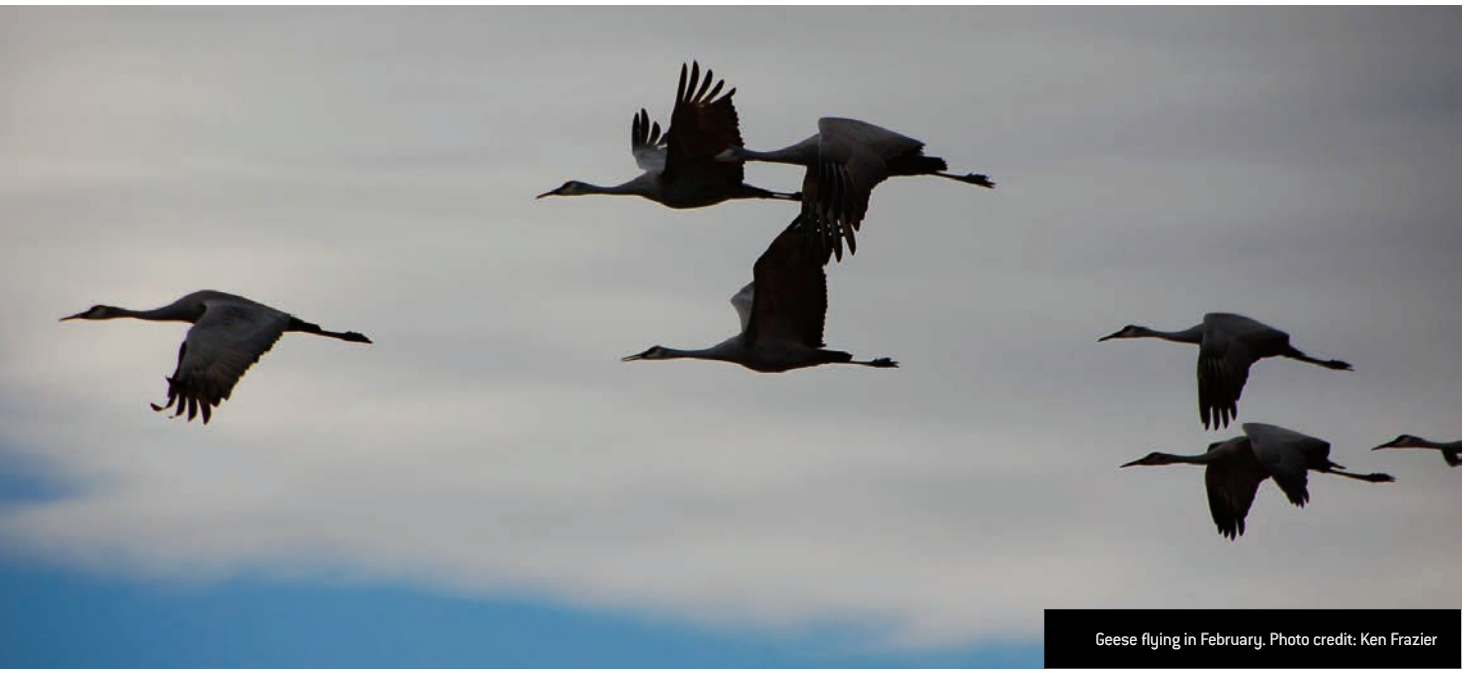
Steven Pinker

Ken Frazier was an inspiration to me from the time I first subscribed to Skeptical Inquirer as a graduate student in the 1970s to our recent collaboration in publishing Carl Sagan's lost speech. In between, he made SI a beacon in the movement for science, reason, and humanism and inspired countless scientists, humanists, and readers. And he did it all with great warmth and good cheer.

Steven Pinker is Harvard College Professor and Johnstone Family Professor in the Department of Psychology at Harvard University.

Massimo Polidoro

It is so sad to learn that another light of the skeptical movement has gone out. Ken was a true pillar of modern skepticism, and we will miss him badly. I was lucky enough to have met him at the beginning of my skeptical voyage, when I was just twenty, at the end of the 1980s, and I have been fortunate to continue collaborating with him all this time. It was a great joy, in 2018, to have been able to bring James Randi, Ray Hyman, Jim Alcock, and Ken onto the same stage with me



Geese flying in February. Photo credit: Ken Frazier

to remember the beginnings of CSICOP. The last time these giants were all together.

We will all miss Ken, but we can find some solace in the fact that he knew he had spent his life well. Just as Leonardo da Vinci once said: "As a well spent day brings happy sleep, so a life well used brings a happy death."

Massimo Polidoro is an investigator of the paranormal, author, lecturer, and cofounder and head of CICAP, the Italian skeptics group.

Elizabeth Loftus

Aside from many enjoyable conversations with Ken, and often his wife, Ruth, too, I will always cherish my interactions with Ken around the Skeptical Inquirer. We had periodic discussions about ideas for new pieces for the magazine, and Ken was always eager to innovate. Not long ago I brought him an idea, quite unsure whether he would have any interest in it. A graduate student (Emma), who was taking my course called Memory and the Law, had submitted her final paper under the title "Searching for Satan," which was all about what was going on in modern times around belief in satanic ritual abuse. The paper was so good I wanted it to have an audience bigger than just the professor who would be assigning a grade for her. Would the Skeptical Inquirer be interested? Ken read the paper, loved it, got some more opinions, and in the end published Emma's paper in the magazine. She was beyond thrilled. In addition, Emma's father had all kinds of new respect for his daughter, as they had together been fans of the magazine for years. I was thrilled that I could help a student in a way I had never done before. Thank you, Ken, from Emma, her father, and me.

Elizabeth Loftus is Distinguished Professor of Social Ecology, and Professor of Law, and Cognitive Science in the Psychology and Social Behavior and Criminology, Law and Society Departments in the School of Social Ecology at University of California, Irvine.

Michael Heap

The death of Ken Frazier is a source of great sadness for skeptics in the United Kingdom. Ken was among a group of U.S. members of what was then the Committee for the Scientific Investigation of Claims of the Paranormal who organized and participated in an international conference in London in June 1985. An account of this meeting is available online (at bit.ly/3Yd3Qap [pdf]) and makes for an interesting read, including Ken's "Musings, Thoughts, and Themes." I think this would have been the first conference in the United Kingdom devoted to *skepticism* in the way that we use this term these days (i.e., we now speak of "the skeptical movement"). The event received the attention of our national press and was influential in helping skepticism gain a firm foothold over here. In the years that followed, Ken was a great friend and supporter of skeptical activism in the United Kingdom, including U.K. Skeptics and the Association for Skeptical Enquiry (ASKE), and his presence was always greatly welcomed at the biannual congresses organized by the European Council of Skeptical Organisations (ECSO). It is amazing that for so many years he remained at the forefront of international skepticism. To the end, he represented those standards of honesty, integrity, knowledge, and wisdom that define the best of what skepticism is all about.

Michael Heap is a retired clinical psychologist and university lecturer. He is cofounder of the Association for Skeptical Enquiry (ASKE).

Lee Nisbet

Ken Frazier's unexpected death is a terrible loss, first and foremost for his wife and family and the rest of us at the Committee for Skeptical Inquiry (CSI). He built the Skeptical Inquirer into a publication of worldwide influence and leadership in the task of bringing critical thinking to

issues of wide public interest. On a personal level, his unexpected untimely death is deeply shocking and terribly sad. As a founding member and fellow of CSI, its first executive director, and Executive Council member, I have known Ken for almost a half century. Ken was not only a smart and talented science journalist and editor, but he was an unpretentious, fair-minded, warm, high-character human being. Given the controversial nature of our subject matters, it would be easy to personalize disagreement and degenerate into polarizing nastiness. Not Ken! Criticism, yes—personal attacks, no. Ken's editorship provided stellar advertisement for our organization. My wife and I will miss you, Ken. Your legacy is top shelf. Your death is very painful. So long, amigo.

Lee Nisbet is a founding member and fellow of the Committee for Skeptical Inquiry, its first executive director, and an Executive Council member.

Tim Trachet

In the name of the Belgian skeptics organization SKEPP, I want to express our condolences for Ken Frazier's death. I had the privilege of meeting Ken a few times during international skeptical meetings and had some short but pleasant talks with him. However, a lot of skeptics in the world know him as the editor of the Skeptical Inquirer, which became a real monument thanks to his work. For the many faithful readers, he was a fellow fighter, a comrade in the difficult and nearly endless struggle for science and reason during all those years.

Tim Trachet is a Belgian writer, publicist, and journalist. A cofounder of SKEPP, he is now its honorary chairman and general secretary.

Jeanne Goldberg

I am stunned and deeply saddened by news of the passing of Ken Frazier. This news just took my breath away as I read it in the *Morning Heresy*.

I am pleased that I had the opportunity to meet him in person at one of the CSICon conventions in Las Vegas. I was impressed by his kind, gentle demeanor and his intelligence. I have published a few articles in the Skeptical Inquirer, and his guidance and encouragement were greatly appreciated. Even though I have an odd personal habit of frequently reading magazines from the end to the beginning, I always read Ken Frazier's "From the Editor" commentary at the beginning of each Skeptical Inquirer first! His perspectives in these comments were astute and enlightening, and he expressed his appreciation for contributors' efforts in the most supportive way.

I extend personal condolences to his immediate family members and to his friends and colleagues in the world who will never forget him.

Jeanne Goldberg, MD, is a retired radiologist and a previous chair of the Florida Division of the American Cancer Society Breast Cancer Task Force.

Henri Broch

Despite the distance between our two countries, we have over time discussed what critical thinking is, and we shared the particular approach that makes us skeptics. And in the face of the disease that strikes you, if the words are difficult to find, I am wholeheartedly with you in this moment. You have to know that your work as editor of the Skeptical Inquirer is a total success and is particularly appreciated by French skeptics. The quality of your magazine amply attests to this. As a CSI fellow, I also want to speak for all the readers of SI that the library of the Zetetics Analysis Center in France has the honor to make available to them, colleagues, and students of the Faculty of Sciences of Nice. With all my respect for your immense work and with my sincere friendship.

Henri Broch is a Committee for Skeptical Inquiry fellow and director of the Center for the Study of Paranormal Phenomena at the University of Nice-Sophia Antipolis, France.

A Kendrick Frazier Bibliography

Books by Ken Frazier:

Shadows of Science: How to Uphold Science, Detect Pseudoscience, and Expose Anti-Science in The Age of Disinformation (forthcoming, Prometheus Books)
People of Chaco: A Canyon and Its Culture (2005, University of New Mexico Press)
Solar System (Planet Earth) (1985, Time-Life Books)
Our Turbulent Sun (1982, Prentice Hall)
The Violent Face of Nature: Severe Phenomena and Natural Disasters (1979, William Morrow)

Skeptical Inquirer anthologies edited by Ken Frazier:

Unreason: Exploring Pseudoscience, Conspiracies and Extraordinary Claims (forthcoming, with Benjamin Radford, Rowman & Littlefield)
Science Under Siege: Defending Science, Exposing Pseudoscience (2009, Prometheus Books)
The Hundredth Monkey and Other Paradigms of the Paranormal (1991, Prometheus Books)
Science Confronts the Paranormal (1986, Prometheus Books)
Paranormal Borderlands of Science (1981, Prometheus Books)

The Curious Case of the Carolina Lizard Man

A sighting of a strange creature near a small-town swamp single-handedly spawned a monster legend. Though decades have passed, a closer look at the claims and evidence reveals a likely culprit.

BENJAMIN RADFORD

Among the mysterious creatures said to lurk in the United States, the Lizard Man is surely among the strangest: seven feet tall, powerful, aggressive, and incredibly fast. It's never harmed anyone, though it allegedly chews on automobiles. It was first sighted late at night near a butterbean field in the Scape Ore Swamp near the small South Carolina town of Bishopville. Teenager Chris Davis's dramatic June 28, 1988, sighting remains the definitive account of the creature; his illustration appears as Figure 1.

Though a handful of others have reported the beast (see, for example, Blackburn 2013), most of those cases were not eyewitness sightings but instead reports of damaged vehicles *attributed* to the Lizard Man (much in the way that many reports of the chupacabra are not sightings but instead bodies of dead goats and chickens *attributed* to that creature; see Radford 2011).

What began as a local curiosity blew up as the national and international news media—from *Good Morning America* to *Oprah* and *People* magazine to *The Los Angeles Times*—caught wind of the story. A small cottage industry was spawned, and soon the town offered Lizard Man merchandise (see Figure 2). Despite—or perhaps because of—all the publicity surrounding the Lizard Man, relatively little critical analysis has been brought to bear on Davis's original sighting.

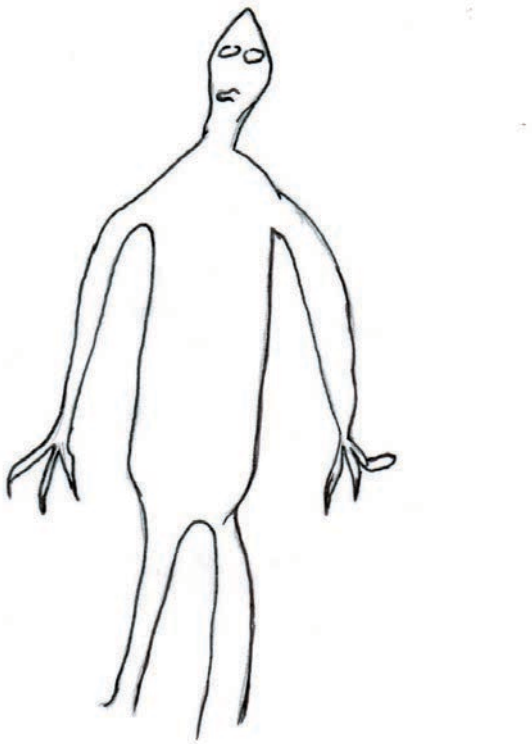


Figure 1. Chris Davis's drawing of the Lizard Man he saw one night near a swamp in Bishopville, South Carolina. Illustration by the author.

Chris Davis Meets the Lizard Man

Here is the story Chris Davis told:

> Driving home from his job, he had run over something sharp near the swamp, which caused a flat tire. Just as he finished changing the wheel, he suddenly heard a noise and looked across a moonlit butterbean field and saw something that stood more than seven feet tall. According to Davis's report on the Associated Press wire service, the creature "was about 25 yards away and I saw red eyes glowing. I ran to the car and as I locked it, the thing grabbed the door handle. I could see him from the neck down—the three big fingers, long black nails and green rough skin. It was strong and angry. I looked in my mirror and saw a blur of green running. I could see his eyes and then he jumped on the roof of my car. I thought I heard a grunt and then I could see his fingers through the rear windshield, where they curled around on the roof. I sped up and swerved to shake the creature off." (quoted in Manley 2007)

Dolores Riccio and Joan Bingham (1991) pick up the account in their book *More Haunted Houses*: "A shaken Davis reached home, ran in, and told his father. Together they went to inspect the car for damage. The first thing they found was that the side mirror had been terribly twisted. When Chris Davis's father looked at the roof of the car, he found deep scratches penetrating the paint and even denting the metal."

Davis's story was endorsed by local sheriff Liston Truesdale. Part of the reason Truesdale found Davis credible is that his story never varied: "What impressed me was that he told the same story every time. And he had to tell the story over and over again to the media and others," Truesdale said of Davis (Burns 2009). Davis was also said to have passed a police-administered polygraph (lie detector) test with flying colors.

A Closer Look

It all makes for a sensational story, but several key claims wither under skeptical scrutiny. For example—contrary to Sheriff Truesdale's statement—Davis's story had in fact changed several times in the months and years following the sighting: "As he told and retold the story some of the details changed. For instance, while he first said the creature had scales, he later said the creature was caked with mud" (Riccio and Bingham 1991).

Davis also gave different accounts of how far away the creature was when he first saw it and other details.

Another account from the local newspaper, *The (Sumter) Item* of July 20, 1988, offered a somewhat different version in an interview with Davis conducted at the site of his sighting:

> "I had just put the tire in the trunk when I see this thing coming from those trees (about fifty yards away), kicking up dust as it ran." He said the creature grabbed the car door just as Davis sped off. When he reached forty mph, he said he noticed it had caught up with him. "I looked in the rear-view mirror and I saw something, and heard a crash on the roof." (Georgas 1988)

This version is puzzling not only for the details it includes but the details it omits. Davis states that he sees the Lizard Man under some trees running toward him and "kicking up dust." This is a curious detail, partly because Davis is claiming to have seen dust being kicked up in near-darkness at nighttime from fifty yards away—half the length of a football field (and twice as far away as he claimed in other accounts). There's no mention of the three green fingers he later saw clinging to the car as he drove, terrified, trying to shake the creature.

Furthermore, Davis's claim that he saw "a blur of green" coming at him as he drove away cannot be true. Car taillights are red, not white, and thus everything just behind Davis's car would be bathed in a red hue giving a false color. Davis could not have seen a green blur behind him as he claimed, because both red and green are primary colors, and nothing looks green under a red light; a light green object in red light appears yellow, and a dark green object in red light appears black. The red eye shine has been claimed for many supernatural and cryptozoological creatures, including chupacabra, the Mothman, and even Satan (one source notes that Davis at first thought he was seeing the Devil because of the red eyes; for more on eyeshine, see Radford 2020). Though many writers have taken Davis's description at face value, several key parts of his description cannot be accurate.

How, exactly, did Davis even see the Lizard Man creature at two o'clock in the morning? The area is a swamp, and there was little available light. This was and is a very rural area, and photographs of the scene taken at the time show no streetlights. Consulting an almanac, I discovered it was a nearly full moon; an ordinary person might be able to see some details at close range (assuming the moonlight was not blocked from above by clouds or trees), but Davis's detailed description beggars belief. Either Davis's eyesight was superhuman or his imagination filled in many of the details he saw. Our brains often "fill in" details with what we expect to see—not necessarily what we actually see—and we unconsciously bias our reports accordingly.

And how did Davis escape the creature? The logistics of Davis's account don't add up; he claimed to have spotted the Lizard Man creature from about twenty-five (or thirty, or fifty, depending on the source) yards away (in near-darkness no less) and that it caught up with his car even as it raced at a speed of up to forty miles per hour. A creature that could move that fast would take less than five seconds to reach Davis's car from where it was seen. It should have been able to grab Davis in the time it took for him to notice the Lizard Man, see the details he described, realize it was running toward him, close the trunk of his car, go around to the driver's side, open the door, get the keys out and start the ignition, close and lock the door, get the car in gear, and speed off. This is one of several aspects of his encounter that are, at best, exaggerated.

Figure 2. A tourist T-shirt depicting the South Carolina Lizard Man. Note the license plate snack in its left hand, a reference to its alleged diet of car parts. Photo by the author.

Unfortunately, we may never know the answers to these questions; Davis died in 2009, sticking by his story to the end. There are, however, several issues that bear on the credibility of his sighting.

The Lie Detector

The fact that Davis passed a lie detector has become an important element of the story, giving it implicit endorsement by the police. However, that turned out to be false. Davis was given a *private polygraph test* "paid for by Southern Marketing Inc., a company formed by two Sumter men to arrange personal appearances for Davis" (Tuten 1988). In other words, the polygraph was an informal publicity stunt. In any event, at best the polygraph detects signs of physiological reactions to intentional deception, not mistakes or false information. If Davis sincerely (but mistakenly) believed he saw something unknown, he would likely pass.

Car-Chewing Lizard Man?

Davis had one piece of evidence that seemed unimpeachable: the damage done to his vehicle. There were no eyewitnesses to Davis's sighting and no evidence to show that his encounter was real—except for the damage done to his car, the "deep

Figure 3. The author appearing in an episode of *Weird or What? with William Shatner* discussing his investigation into the Lizard Man.

scratches penetrating the paint and even denting the metal." Another account (Blackburn 2013) states that "the driver side mirror was bent and twisted" and there were scratches on the car's roof. In fact, "mysterious" car damage would later become integral to the Lizard Man lore, as later "chewed up" auto fenders would be seen as evidence of its presence.

For an episode on season three of the *Weird or What? with William Shatner* television series, I was asked to investigate the Lizard Man, including reported "bite marks" (holes and dents) in car bodies attributed to the creature (see Figure 3). I conducted tests using various implements of destruction in an auto salvage yard in Albuquerque, New Mexico, near where a scene in *Breaking Bad* was filmed.

It quickly became clear that people were reinterpreting ordinary, unnoticed damage and holes as extraordinary. If they were bite marks, we should find impressions from the lower jaw as well, which were completely absent. Furthermore, the holes were about the same size—but teeth do not make identical marks, and especially not round identical marks. Unless this creature has an upper mouth of teeth shaped like a rake, it couldn't have made the marks attributed to it. The Lizard Man "bite marks" were caused by a variety of things, including high-speed impacts by small spherical objects such as BBs and pebbles. As in many unexplained phenomena, from ghosts to lake monster sightings, psychological priming can transform the mundane into the mysterious.

Yet—as with the police polygraph—though the mangled metal makes a dramatic story, there is little evidence it is true. While several sensationalized versions of Davis's story state that his car was damaged, other reports from the local newspaper at the time note instead that "he escaped with no more than a scratch on his fender" (Georgas 1988). Not only do newspaper reports from the time quote Davis himself as saying that the encounter left little more than a scratch, but there are *no photographs of any damage done to Davis's car at all*. The conspicuous absence of any photos is revealing; surely if the car's mirror was indeed nearly torn off and dramatic, mysterious deep scratches of the car were visible, Davis and his publicity team would have eagerly circulated photographs of them to bolster his story.

The inconsistencies and contradictions in Davis's story are problematic, and the lack of car damage doesn't help matters. Still, this brings us no closer to knowing what, if anything, Davis saw in the Scape Ore swamp. The obvious explanations include a hoax, a misidentification, or some genuine Lizard Man monster.

Lucious the Lizard Man

Could Davis have simply made the whole thing up? Davis's account is gripping and scary—and suspiciously cinematic. It has many of the standard hallmarks of a scene from a monster or horror film, starting with a car breaking down late at night on a dark and lonely section of road and ending with a terrifying escape. It certainly could be a hoax, but there is a more likely explanation.

What, if anything, did Davis see? There's little real evidence from which to draw a solid conclusion, but one part of his report that stands out is the red eyes, and locals have a few theories that might explain that. One investigator, Alicia Lutz (2011), makes a strong case that what Davis saw that night wasn't a Lizard Man but instead a local man named Lucious Elmore, a butterbean farmer who had a shed near where Davis had his flat tire (see Figure 4 for a sample of his wares).

> Lucious "Brother" Elmore was a lucrative butterbean farmer, with 40-something acres of butterbeans. … In order to keep his harvest moving quickly, he dumped the beans onto drying tables in his shed on Browntown Road, which he equipped with window-mounted air-conditioning units to further speed up the drying process. "In those days, not everybody had air conditioning, and I guess it got so hot sometimes that it went to people's heads, because people kept stealing the units right out of Brother Elmore's shed," Al Holland,

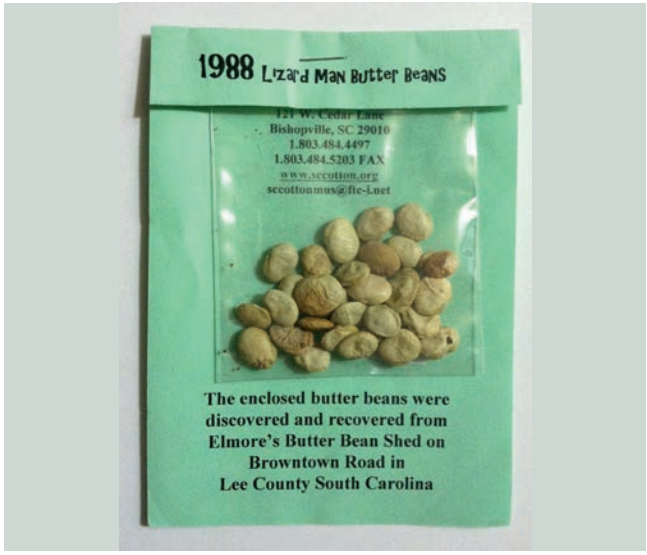

1988 Lizard Man Butter Beans
Bishopville, SC 29010
1.803.484.4497
1.803.484.5203 FAX
www.scotton.org
scottonmus@ftc-I.net
The enclosed butter beans were discovered and recovered from Elmore's Butter Bean Shed on Browntown Road in Lee County South Carolina

Figure 4. Butterbeans from the field where Chris Davis's car broke down near Lucious "Brother" Elmore's butterbean shed in June 1988, spawning a Lizard Man sighting. Photo by the author.

> owner of the local feed and seed, had told us that morning. "Well, he'd just picked up three new units from the store, and people knew this. But he was determined to make sure no one stole them." (Lutz 2011)

Annoyed by the nighttime thefts, Elmore stayed up overnight at his shed guarding his new air conditioning units, sitting quietly alone in the dark to catch a thief.

> Brother Elmore claimed to be on a stakeout the night that Christopher Davis's tire blew, and—when he heard the car stop just 100 yards down the road from the butterbean shed, he thought he'd found his culprit. "He walks out to the road, which is lower than the yard, so he's up high, hiding in the dog fennel," Holland told us. "So he's standing there, he's looking down, when the kid turned around and screamed and took off." … Davis' taillights reflected in Elmore's glasses, causing an illusion of red glowing eyes. (Lutz 2011)

Though not definitive proof, Elmore's account seems plausible and there's little incentive to make up a story about encountering Davis near his butterbean shed that night. As Blackburn notes, "It would certainly be coincidental that Davis reported having a flat near the Butterbean Shed on the very night Elmore chased away a thief" (Blackburn 2013). Though Davis would have been aware of any passing cars by their headlights as he changed his car tire on the dark, lonely stretch of road, it's unlikely that he would expect to see someone walking toward him in the moonlit darkness from the nearby swamp. Any one of us might have been startled and spooked by such a sudden appearance, and in his panic Davis's imagination may have filled in the other details. This explanation also jibes with the fact that there was little or no damage to Davis's vehicle. As Davis only mentioned seeing "something" behind him and was swerving back and forth through a swampy, wooded area, it's possible that he scraped low-hanging tree branches that in his panic he mistook for something in his roof.

A Real Monster?

Some thirty-five years after the events, it's impossible to know what, if anything, Davis saw, but surely a seven-foot-tall Lizard Man is among the least likely explanations. There have been few, if any, credible reports in over twenty years, and most of those were not actual sightings but instead cars that sustained some ambiguous damage blamed on the Lizard Man (ironic given the apparent lack of damage in its first appearance). Ordinary and unremarkable damage to cars in the Bishopville area—which would otherwise have been attributed to vandalism, road hazards, or careless drivers—were seen as mysterious in the context of the Lizard Man publicity.

Why would a fully-grown, man-size creature only be seen once or twice and then essentially disappear? Perhaps it was killed or died of natural causes without ever being found, and this explains its disappearance. However, this presumes the beast was unique. As with other cryptids, if it's a real flesh-and-blood animal, then of course it cannot be a single solitary creature; unique animals do not simply pop into existence (and certainly not for brief periods of time). Simply from a biological perspective, the Lizard Man's singular existence is implausible.

An alternative explanation is that the Lizard Man never existed in the first place and that its mythology was created by one or more misidentifications and misunderstandings. If that's true, then the fact it is no longer seen needs no explanation other than that many monster sightings, like many UFO sightings, occur in flaps that gradually fade away. Chris Davis's report—the most celebrated and detailed encounter of the Lizard Man—is quite literally incredible, riddled with both implausibility and impossibilities. It may be sincere or it may be a hoax, but in either event, there's no hard evidence of the creature. Davis is gone, and it seems that the monster he made famous is long gone as well. Still, if you ever visit the small town of Bishopville, South Carolina, you can find the Lizard Man—on shirts, caps, and mugs. That sound you hear in the small town isn't mangled metal or a monstrous roar but the sound of cash registers. ■

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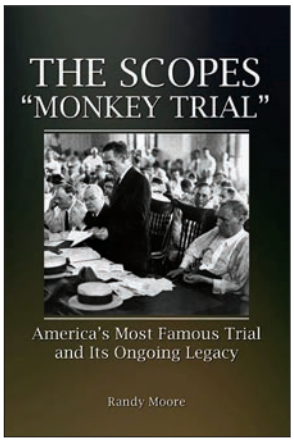
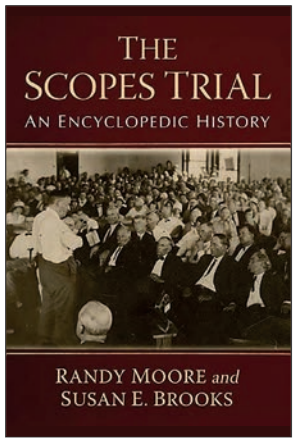
Benjamin Radford, MEd, MPH, is a research fellow with the Committee for Skeptical Inquiry, deputy editor of Skeptical Inquirer, and has a longstanding interest in cryptozoology and monsters. He is author or coauthor of fourteen books, including *Lake Monster Mysteries* (with Joe Nickell), *Tracking the Chupacabra*, and (most recently) *America the Fearful: Media and the Marketing of National Panics*. He is also a member of the American Folklore Society and cofounder and cohost of the podcast *Squaring the Strange*.

Moore (and Yet More Moore) on the Scopes Trial

Glenn Branch



The Scopes "Monkey Trial": America's Most Famous Trial and Its Ongoing Legacy. By Randy Moore. Santa Barbara, CA: Praeger, 2022. ISBN 978-1-4408-7809-1. 276 pp. Hardcover, $50.00.



The Scopes Trial: An Encyclopedic History. By Randy Moore and Susan E. Brooks. Jefferson, NC: McFarland Publishers, 2023. ISBN 978-1-4766-8544-1. 219 pp. Paperback, $49.95.

After a trial held over eight scorching days in July 1925, John Thomas Scopes, a young teacher in Dayton, Tennessee, was convicted of violating a recently enacted state law forbidding educators in the state's public schools "to teach any theory that denies the story of the Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals." The trial was swiftly dubbed the trial of the century—perhaps originally by the *Cincinnati Enquirer*, which used the phrase on July 10, 1925—and, as the trial's centenary approaches, the description still seems defensible. Whether regarded as a struggle between science and religion, enlightenment and ignorance, or elitism and democracy, *State of Tennessee v. John Thomas Scopes* is a constant presence in discussions of education, science, and religion in America.

A professor of biology at the University of Minnesota, Randy Moore is a prolific compiler of reference works on topics related to evolution and evolution education, such as the Galápagos, the Grand Canyon, and the creationism/evolution controversy. He is also a recognized expert on the Scopes trial, having researched it for twenty-five years and published *A Field Guide to the Scopes Trial*, a *vade mecum* for the historically inclined visitor to Dayton, Tennessee, and a brief but lavishly illustrated history in the Images of America series, *The Scopes Monkey Trial* (coauthored with William F. McComas), both in 2016. Now, in *The Scopes "Monkey Trial": America's Most Famous Trial and Its Ongoing Legacy* and *The Scopes Trial: An Encyclopedic History*—coauthored with Susan E. Brooks, a graduate student in history at Mississippi State University and a great-grandniece of John Thomas Scopes himself—Moore turns to focus on the Scopes trial in detail.

Understandably, the content of these books is similar, with identical sentences and even paragraphs sometimes appearing in both, but they differ in format. Moore's *The Scopes "Monkey Trial"* offers a straightforward narrative account of the background, conduct, and aftermath of the trial, followed by chapters on *Inherit the Wind* (the 1955 play and 1960 film that influenced the public memory of the trial), the continuing court struggles over evolution education, and the post-trial careers of the people who participated in the trial. Moore and Brooks's encyclopedic *The Scopes Trial* covers more or less the same ground alphabetically, from *Alleged* (a creationism-friendly movie about the trial) to George Frederick Wright, a minister and self-educated geologist cited by the prosecution's William Jennings Bryan while testifying—anomalously—as a witness called by the defense in the trial.

"The public wanted to know *everything* that was happening in Dayton," Moore writes (50, emphasis in original). "What kind of soda does Darrow drink at Robinson's? How tall is Scopes? How tall is Scopes's father? How much does moonshine cost? What is a Holy Roller? Where does Bryan get the radishes that he eats as snacks?" Although none of these questions is in fact answered, both books cater to the same insatiable curiosity about the Scopes trial and share the distinctive advantage of original research. According to Moore, *The Scopes "Monkey Trial"* reflects "much new information, including stories from John Scopes's friends' and family scrapbooks, public records, and interviews with John Scopes's children, relatives, and friends" (xiii), which appears to be true of *The Scopes Trial* as well.

A charming, though hardly revelatory, example of the new information incorporated in these books involves

Scopes's work at Rhea Central High School. Hired to teach science and mathematics, "Scopes soon realized that football in Dayton 'was more important than bootlegging' and that coaching 'was the most important part of my job,'" Moore and Brooks relate (158). Never having played football himself and despite allowing his players to smoke, he nevertheless led the Yellow Jackets to post a 4–4–2 record and was hailed as the best football coach that Dayton ever had. After he left Dayton in the wake of the trial (to attend graduate school at the University of Chicago) and was replaced as football coach by a self-avowed fundamentalist, one player complained, "Shucks, our football team is busted. … What does a fundamentalist know about football?" And indeed, the team then had a losing season.

A "just the facts, ma'am" approach seems reasonable for reference works in general. Even so, these books are notably meager on interpretation. For example, Moore asks (in a section heading on page 18), "Was Bryan a Fundamentalist?" but neither offers a decisive answer or explains why the question is important. Broader issues of gender, region, and race, which the historian Jeffrey P. Moran illuminatingly discussed in *American Genesis* (2012), are scanted, although Moore and Brooks devote three pages (131–133) to race and racism, citing Moran's research (but unfortunately misreading Clarence Darrow's 1926 essay "The Eugenics Cult" as espousing racism).

And there are a few facts that are conspicuous by their unwelcome absence. The most serious instance is in Moore's solo book, with regard to *Selman v. Cobb County School District*. Moore correctly reports the trial court's 2005 decision that a textbook disclaimer describing evolution as "a theory, not a fact" violated the Establishment Clause but fails to note that the decision was vacated on appeal, owing to concerns about the evidence, and remanded to the trial court, where a settlement was reached before the case was retried (see Jeffrey Selman's *God Sent Me* [2015], reviewed in the September/October 2015 issue of SI). Also, given the attention that both books lavish upon *Inherit the Wind* and its rivals, it is disappointing not to see any discussion of Peter Goodchild's docudrama *The Great Tennessee Monkey Trial* (1993), which was widely produced, often with the late Ed Asner as William Jennings Bryan.

Both books are clearly organized, copiously illustrated, and lucidly written, although there is a tendency, probably due to Moore, to overstuff relative clauses with information, sometimes in a way that results in confusion. Overall, although only Moore's solo book is suitable for the general reader, thanks to its narrative approach, both *The Scopes "Monkey Trial"* and *The Scopes Trial* provide admirable treatments of the Scopes trial. In these books, Moore and Brooks have provided valuable contributions to a literature that, as the centenary of the Scopes trial approaches, will only continue to swell. ■

Photograph of John Scopes taken one month before the *Tennessee v. John T. Scopes* trial. From the Smithsonian Institution Archives.

Glenn Branch is deputy director of the National Center for Science Education and a fellow of the Committee for Skeptical Inquiry.

Skeptical Inquirer
THE MAGAZINE FOR SCIENCE AND REASON

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Autism Politics

I would like to point out a factual error in the article "Autism Politics and the Death of Truth and Freedom" by Stuart Vyse (January/February 2023). Vyse stated that autism is a "psychiatric disorder." This is incorrect. Although still listed as psychiatric in the *DSM*, it is actually neurological in origin, not psychological. That's not to say that autistic people can't have psychiatric conditions in addition to autism, however. Also, it is more accurately considered a developmental disability than a "disorder."

Lynn Bachhuber
Portland, Oregon

Stuart Vyse responds:

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5), which is published by the American Psychiatric Association, makes no claims about the causes of autism. Although autism spectrum disorder likely does have neurological origins, autism—like all the mental disorders in the book—is defined by its observable features. The terms psychiatric disorder *and* mental disorder *carry no implications about the origin of the condition.*

Devil's Baby of Ravenswood

I am both an avid reader of Skeptical Inquirer and a lifelong West Virginia resident. I grew up in Parkersburg, West Virginia, and during the early 1980s dated a girl from Ravenswood. Even then we knew about the legend (urban myth) of "The Devil's Baby." We would cruise by the cemetery drinking beer (among other things!) and teasing the girls in the car about dropping them off at the gate and leaving them to deal with the "devil's child." All in good fun!

You can imagine my surprise when I received one of my favorite magazines in the mail at the end of December, and right there on the cover is a photo from the old Ravenswood graveyard, with an article inside containing a scientific investigation of the "Devil Baby" grave ("The Case of the Devil's Baby of Ravenswood" by Daniel A. Reed, January/February 2023).

C'mon! You are better than that!

Such nonsense does not deserve the cover of a two-page student newsletter from a grade school, let alone a reputable magazine such as Skeptical Inquirer!

The article was well written, the research well done, but the topic …

The topic was not worthy (IMHO) of such exposure.

Bill Bradley
Fairmont, West Virginia

Benjamin Radford responds:

As a folklorist, I take light umbrage at Bill Bradley's description of the Reed article as "such nonsense." By what measure is it "nonsense"? Is that specific legend or belief any less "nonsensical" than other topics that routinely appear on our cover, from QAnon conspiracies to creationism, ghosts to UFO reports? Of course that particular article is not hard-hitting journalism; folklore rarely is. But it's well within the purview of Skeptical Inquirer and always has been. As editors we rarely decide that a proposed topic is too silly or stupid to address, because some people (often, many people) believe them. Other times the article reveals instructive themes in psychology and folklore. As Bradley admits, "The article was well written, the research well done." That's much of our criteria, and if Bradley has no interest in folkloric articles he is under no obligation to read them.

Religious Responses to the JWST

Manfred Cuntz ("The James Webb Space Telescope: First Responses from Religion," January/February 2023) correctly observes that Big Bang deniers have attempted to capitalize on the title of a recent astronomy paper titled "Panic! at the Disks," but neither he nor they seem to have noticed that the title playfully alludes to the name of a popular music group, Panic! at the Disco. Such allusions are not uncommon; a 2018 study found almost 600 biomedical scientific publications with titles containing references to songs by The Beatles.

Glenn Branch
National Center for Science Education
Oakland, California

In the article by Manfred Cuntz, the author gives as an example of "quote mining" the reference by young-earth creationism proponent Ken Ham to the manuscript titled "Panic! At the Disks: First Rest-frame Optical Observations of Galaxy Structure at z > 3 with JWST in the SMACS 0723 Field." Ham apparently has taken the title at face value and has obviously not read the manuscript, as there is no real indication of panic on anyone's part. Rather, the authors of the manuscript describe the valuable and unexpected data newly revealed by the JWST, welcoming the opportunity to reexamine and perhaps revise our current understanding of the formation of our universe. Exciting stuff!

Ham goes out of his way to expound upon the "panic" while Cuntz characterizes the title of this manuscript as "a bit lurid." I'm afraid both Cuntz and Ham have taken much too seriously a simple play on words, an allusion to an early 2000s rock band that some of us may be familiar with, Panic! at the Disco. (The reference popped into my head as soon as I read it.) The idea that the surfeit of disk galaxies observed by the JWST was totally unexpected must have been what inspired the Panic! … Disks reference. I think it's rather amusing and indicates a sense of humor on the part of the Panic! authors.

Linda Ferrazzara
Randolph, Massachusetts

Identifying Unsubstantiated Claims

The January/February 2023 article "Identifying Unsubstantiated Claims" by D. Alan Bensley states "For instance, the claim that thimerosal in MMR vaccines causes autism is pseudoscientific." This inadvertently perpetuates a false claim. Per the CDC (https://www.cdc.gov/vaccinesafety/concerns/thimerosal/index.html), "Measles, mumps, and rubella (MMR) vaccines do not and never did contain thimerosal. Varicella (chickenpox), inactivated polio (IPV), and pneumococcal conjugate vaccines have also never contained thimerosal." The current myth that the MMR vaccine contains (or contained) thimerosal appears to be a result of American concerns about thimerosal in non-MMR vaccines merging with the British concerns about the MMR vaccine (originating from Wakefield's discredited studies).

Andrew Love
Columbia, Maryland

Ecocognition and Climate Change

After subscribing for a year, I will not be renewing. When I first saw ads for the magazine, I thought that being skeptical was the point. Many of the articles were interesting, but also many were so obscure as not to provoke my interest. One topic that does interest me is climate change, which was originally

called "global warming" until it was hard to find any. The article "Ecocognition: Observation and Interpretation in the Understanding of Climate Change" by Matthew Sharps et al. (January/February 2023) started with the faulty premise "Climate change is obviously real—and urgent." Well changing climate is real and has been occurring ever since there was enough gas accumulating on our cooling rock to make weather and over time climate. The "obviously real" is not, and most examples in the media should be properly reported as weather. The fact that a group of scientists form a consensus that something is true does not make it so. Neither do the climate models that seem to be the only place where catastrophes can be found. Looking at the data, I find nothing to fear from the climate, but I do have great fear what will be done to our civilization by activists and governments proposing solutions that are far more destructive than climate change. There are climatologists who have a far different view of the future, but they are often shunned and censored, especially on social media. I have not seen any of these skeptics in the pages of your magazine for a topic that is "obviously real—and urgent." It makes me think that only proper skeptics need apply.

Tim Shankland
Helena, Montana

Matthew Sharps responds:

Climate change is of course real and has been a major feature of the earth since the planet's origin. The topic has, however, become "urgent" as human beings have begun to respond to weather and climate change without necessarily having access to accurate facts or interpretations and with psychological proclivities that may prove suboptimal for rational consideration of the relevant long- and short-term issues. The point of the article was neither to affirm nor to deny popular attitudes toward weather or climate change but to report on psychological attributes that may have a very real bearing on the interpretation of weather- and climate-related phenomena.

Sharps et. al. state that "Some popular environmental beliefs simply do not survive the test of scientific skepticism …" and then gave two examples. The first is that "Old growth forests are beloved; yet old-growth forests, wonderful for spotted owls, are bad for the endangered Kirtland's warbler, as the expansion of old growth reduces the fire-dependent jack pine forests that the warbler requires." Yet the owl lives exclusively in the West, along the Pacific coast and Southwestern states, while the warbler lives exclusively in a tiny region of north-central Michigan. That's like claiming that Manhattan high-rise development conflicts with Iowa hog farming; there is no connection whatsoever. Anyone familiar with the science will know that species with particular habitat preferences can't just up and move across the continent.

The second example claims that "the abolition of pesticide deemed environmentally hazardous has been associated with enormous increases in human death rates from malaria." But the source they cite says nothing about that, only that some U.S. farmers who replaced DDT with the far more toxic Parathion *and* ignored the safety warnings suffered illness or death. True, although malaria has been all but eliminated in the United States, it is still a problem in third-world countries. But they *do* use DDT, to which many mosquitoes have unfortunately developed resistance. Malaria research is ongoing; those countries have not been abandoned to their fate. If these are the best examples, I think the world is still safe from environmentalism running amok. I'm more concerned about anti-environmentalism masquerading as science.

Robert Masta
Ann Arbor, Michigan

Matthew Sharps responds:

As stated in the article, the two examples of conflicting agendas in the realm of climate policy were not intended to be comprehensive. They were intended to be examples of the fact that environmental policies, even if well-intentioned, may have negative consequences that are unforeseen. No one anticipates that a California owl is ever likely to meet a Michigan warbler; the example was a demonstration that climate policies that might aid one species in one context may be deleterious if applied to a different species in a different context. The example concerning rising malarial rates was also not intended as a comprehensive review; the point was, again, that a well-intentioned climate policy may have negative consequences. Malaria has once again become a significant public health concern, with huge personal

consequences, for great numbers of people throughout much of the world. Although DDT is of course still in use, it is used much less than formerly and has been abolished in much of the world by means of various policies. A major replacement for DDT resulted in the deaths of many farm workers, who were provided with this highly toxic substance while their entire experience was with much less hazardous chemicals; blaming their deaths on their failure to read "safety warnings" seems unreasonable.

These examples were included to demonstrate potential conflicts between positive and negative effects of climate policies, but only in that regard did they have anything to do with the point of the article, which was to demonstrate human psychological tendencies that may influence judgment and interpretation in climate-related areas. The article was not about climate change; it concerned the psychology of human responses to climate change. What we reported here was the fact that considerations of climate may not have their origins solely in an objective consideration of the natural world; human psychology enters the situation and may render judgments in the environmental realm highly subjective. Given the current political importance of various aspects of the climate debate, we stand by the concept that the psychology of climate change is very worthy of research attention.

The Night Begins to Shine

My son and I took great joy and a chuckle upon reading Nathan H. Lents's article title "The Night Begins to Shine: The Tapetum Lucidum and Our Backward Retinas" in the January/February 2023 copy of our beloved Skeptical Inquirer. Are we presuming correctly that Lents is a fan of the musical group B.E.R. as made famous in the cartoon *Teen Titans Go!* in choosing the first five words of the headline? Wonderfully fascinating article either way.

Erik (and Wesley) Radloff
Milwaukee, Wisconsin

Political Bias in SI

I have been a reader/subscriber on and off for a long time. In fact, I have a copy of Vol. 1, no. 1 of *The Zetetic*. The reason I occasionally let my subscription lapse is to get a break from the political slant in your columns and editorials.

The first issue of my current subscription is January/February 2023. The column by Massimo Pigliucci includes the completely gratuitous disclaimer, "Of course, just because Trump supports an idea doesn't mean that the idea itself is bad." I couldn't find the one that said, "Just because Biden is hopelessly senile doesn't mean *all* his policies are stupid."

Then, in a book review by Richard Dawkins, is a reference (also completely gratuitous) to "Donald Trump and his odious acolytes."

I get it. Most of your contributors are college instructors. Practically by definition they are liberal Democrats hovering on the far-left fringe of reality. I will stipulate to that. You really don't need to prove it in every issue.

Paul Kelly
Delta, Colorado

Senile Dementia

Editors note: The first version of Ward Becker's letter was written before he knew that Dr. Harriet Hall had died. We wanted to publish the letter because it provides some useful information, and as a result we gave the writer the opportunity to revise the letter.

I was saddened to learn that Dr. Harriet Hall had suddenly died and offer my condolences to her family. Her articles were always thoroughly researched and informative, and her voice will be sorely missed.

In "Antioxidants: The Hype and the Reality" (January/February 2023), she used the term *senile dementia*. As a geriatrician, I do not use this term because it could be misinterpreted as implying that the aging process causes dementia. It is true that the prevalence of dementia does increase with age, but aging in the absence of disease is not a cause.

Dementia is a medical syndrome that is a collection of signs and symptoms. It is not a diagnosis by itself and requires an evaluation to determine a specific cause or causes. The dementia syndrome can be defined as an acquired intellectual deficit of sufficient severity to interfere with social and/or occupational functioning. It has a pathological memory impairment and at least one other component, such as personality changes, difficulties with judgments, speech, abstract reasoning, planning, or decision making, among others.

There are many causes of dementia with Alzheimer's disease, Lewy body disease, or vascular dementia (multiple causes, including stroke) being the most frequent. An individual can have multiple causes of dementia concurrently.

Lastly, every cause of dementia can be characterized as reversible/irreversible and nonprogressive/progressive. Reversible means a known treatment can restore partially or completely the lost function. For example, at present Alzheimer's disease is irreversible and progressive.

Ward G. Becker, MD
Kutztown, Pennsylvania

Homeopathy

Because homeopathy keeps returning to the pages of Skeptical Inquirer, I remind readers that homeopathy is quackery with dilutions of grandeur.

Richard Stallman
East Boston, Massachusetts

UFOs over Kyiv

Re: "UFOs over Kyiv" by Mick West (January/February 2023). Interesting story. Surprised there was no reference to the classic Poe short story "The Sphinx," in which a closely observed insect is misperceived as a distant monster.

Richard Babyak
Parma, Ohio

Harriet Hall

Like many, I was saddened by the recent passing of Dr. Harriet Hall. As someone who received her SkepDoc newsletter, I dearly hope the skeptic community can find somebody to pick up the torch and carry on her work, which is extremely important.

A key reason her work was so important is the utter failure of mainstream journalism to properly cover alternative medicine quackery.

I would love to see you investigate that matter of why mainstream journalists aren't pursuing this topic. I would love to see you call up the health and medical writers for the *Post*, the *Times*, and all the rest and flat out ask them to explain their silence. Record their responses and write an article about it. Be sure to forward a copy to the *Columbia Journalism Review*.

My suspicion is that many mainstream journalists actually believe the nonsense. My guess is that a great many of them are taking useless supplements, getting acupuncture, or visiting chiropractors. If so, then the public needs to be informed of that. The public needs to know that mainstream journalists, the self-appointed guardians of truth, are failing their jobs miserably, and that has serious consequences for public health.

Anyway, that's my suggestion. Hope you will give it some thought. You publish an excellent magazine. I always look forward to it.

Richard Babyak
Parma, Ohio

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The Pillars of Creation, a small region within the vast Eagle Nebula, which lies 6,500 light-years away, as captured by NASA's James Webb Space Telescope's near-infrared-light camera. This photo was chosen as one of *Nature* magazine's best science images of 2022.

Credit: SCIENCE: NASA, ESA, CSA, STScI
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